

# PROSPERITY AND DEPRESSION

*A Theoretical Analysis of Cyclical Movements*

NEW EDITION

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## PREFACE

The first edition of this book was written at the suggestion of Alexander Loveday, then Director of the Financial Section and Economic Intelligence Service of the League of Nations, during my stay in Geneva as a member of the Secretariat of the League. My work was part of a larger project, financed by a grant from the Rockefeller Foundation, on the causes and cures of depressions. A later part of that larger project was Professor Tinbergen's celebrated two volumes *Statistical Testing of Business Cycle Theories*.<sup>1</sup>

The first draft of *Prosperity and Depression* was finished in the Summer of 1936. In August of that year, I had the opportunity of submitting my manuscript to a conference of experts, among them O. Anderson, J. M. Clark, A. H. Hansen, O. Morgenstern, B. Ohlin, and J. Tinbergen. Their criticisms and suggestions led to extensive revisions. Prior to that conference, I had greatly profited from the criticism and suggestions of the late Folke Hilgerdt and Rifaat Tirana, of J. B. Condliffe, Marcus Fleming, Alexander Loveday, Ragnar Nurkse, and Luis Rasminsky. The first edition of the book appeared in 1937.

I should like to take this opportunity to pay my tribute to that remarkable group of economists at Geneva. Under the inspiring leadership of A. Loveday, supported by a very small budget (compared with the sums at the disposal of international agencies in the post-war period), that group produced a most impressive collection of analytical and statistical documents dealing with many problems of international trade, economic development, commercial, financial and monetary policies, while at the same time advising governments of many countries on their economic

<sup>1</sup> Vol. I and Vol. II, League of Nations, Economic Intelligence Service, 1939.

problems. The group also provided a highly stimulating atmosphere from which temporary members of the Secretariat like myself, and countless visitors to Geneva were able to derive immense profit.

The second extensively revised and enlarged edition of the book appeared in 1939. In this edition I added Chapter VIII, which contains a lengthy discussion of the Keynesian literature. The first edition had been substantially finished before the appearance of Keynes' *General Theory*, and only a few references to it could be made in footnotes.

A third edition appeared in 1941 still under the imprint of the League of Nations. This edition reprinted Parts I and II of the second edition without change and added Part III, which dealt with some later developments, such as the foreign trade multiplier and multiplier-acceleration models. In this form, the book was later reprinted by the United Nations whom I have to thank for their hospitality.

The book now appears for the first time under the imprint of a private publisher. Unfortunately, it was not possible, at this time, to undertake a major revision. It was therefore decided to make no changes at all in Part I and Part II. Part III has been eliminated and its place has been taken by three papers which had been published elsewhere. In these papers I have tried to sketch and evaluate some recent developments of business cycle theory.

In order to reduce the size of the book as much as possible, the introductions of Mr. Loveday to the first three editions, as well as Appendices I and II of the earlier editions, are not reproduced.

GOTTFRIED HABERLER.

Harvard University,  
September 1957.

The present edition differs from that prepared in September 1957 in that what was Appendix I "Notes on the present state of Business Cycle Theory" has been omitted. A new Foreword has been added. This edition is now similar to that issued in a pocket format by Atheneum Publishers, New York in 1963.

G.H.



## FOREWORD (1964)<sup>1</sup>

### WHY DEPRESSIONS ARE EXTINCT

The business cycle has often been declared dead. To cite but one recent example, there was much confidence among economists of the 1920's that a new era of perpetual prosperity had dawned, securely based on better knowledge and skilful policies. Their optimism was rudely shattered by the Great Depression of the 1930's.

I do not say that the business cycle is dead. I do say that deep and long depressions are a thing of the past. I believe that the majority of economists—including many professional critics of the free enterprise system—would agree with this statement today, though not 10 years ago.

What, then, is a business cycle? At the time of this writing, January 1962, the American economy found itself in the midst of what economists call a "business cycle upswing." This upswing, or expansion, started in February 1961, which marked the lowest point of the preceding business cycle downswing, or recession. (Other synonymous expressions, also widely used, are "depression" and "contraction." There is no sharp dividing line between depression and recession; recession simply denotes a mild depression.)

Since the end of World War II, the American economy has passed through four mild recessions:

#### Postwar Business Cycle Calendar

Expansions	Recessions
Oct. 1945 — Nov. 1948 (37 months)	Nov. 1948 — Oct. 1949 (11 months)

<sup>1</sup> First published in *Think Magazine* (issued by IBM 1962).

level, must take much of the blame for the excessive length and severity of the Great Depression. It should be emphasized that anti-depression policies were timid and inept in the U.S. and elsewhere both by modern and old-fashioned standards. The deep depression of 1920-21 was clearly a financial aftermath of the war; and the deep depression of 1937-38 was part and parcel of the generally depressed period of the 1930's, which transcended the period of the Great Depression proper (1929-33) and came to an end only with the outbreak of World War II.

Deep depressions are thus due to special circumstances and are not essential features of the free enterprise, capitalist economy. I would therefore say that they belong to a category of their own.

Mild recessions, such as those of the post-war period, are more difficult to explain. Moreover, partly because their causes are not obvious, and for other reasons which will become clear later, it is hardly possible to avoid or cure these mild swings altogether—at least within the framework of a free enterprise system.

Why have depressions been so mild during the post-war period? My answer is this is the result of a profound and lasting change in economic institutions and policy, and is not due to a possibly ephemeral constellation of favourable circumstances.

A repetition of the catastrophe of the Great Depression today is practically impossible because of several reasons.

The U.S. financial structure has been greatly strengthened. Bank deposits are now insured. (Federal insurance of bank deposits by the Federal Deposit Insurance Corporation, which became effective in 1934, was the most important monetary reform since the establishment of the Federal Reserve System. It has virtually removed the danger of a run on banks by depositors fearful of losing their money.)

And finally, no wholesale failure of banks and protracted deflation would be tolerated anywhere, not even in the most capitalistic countries.

The scope of governmental activities has greatly increased since 1930. Then U.S. Government expenditure on goods and services amounted roughly to 10 per cent of GNP; now it is more than 20 per cent. And so-called "transfer payments"—for interest, subsidies, social security payments, unemployment benefits and the like—have gone up even more sharply. This expansion of

the public sector one may deplore on some grounds, but it cannot be denied that it is a stabilizing factor, both by itself and because it provides greater leverage for the so-called "automatic stabilizers" and for "discretionary" anti-depression policies.

Let me illustrate this by two figures. If in 1933, at the bottom of the Great Depression, a one-year holiday of all Federal income and profit taxes had been declared, it would have added less than \$1,000,000 to private incomes and would hardly have made a dent in the Depression. In 1960, such a tax holiday would have amounted to \$67 billion and turned even a severe depression into runaway inflation.

Automatic or built-in stabilizers are the automatic increase in Government spending (for unemployment benefits, old age pensions and the like), and the automatic decrease in Government revenue (because of lower tax receipts under a pay-as-you go system of tax collection during a depression when GNP declines). These stabilizers automatically create a deficit in the Government budget in a depression and cushion the impact of a drop in output on disposable incomes and spending by preventing the spending power of the unemployed, the taxpayer, etc., from falling as much as it otherwise would. This has proved to be a very powerful brake on deflationary spirals and has been a major factor in keeping depressions mild.

Discretionary anti-depression policy consists of fiscal and monetary measures.

Fiscal measures consist of increasing Government spending by special public works, or by speeding up and advancing expenditures which would have been made anyway, on the one hand, and of reducing Government revenue by lowering tax rates, on the other hand, so as to counteract the decline of private spending in a recession. Little conscious and deliberate use has been made so far of the tax remission method to counteract recessions. There are, however, two instances on the post-war record when tax reductions, which were made for other reasons, happened to come at the right time to help contain an incipient depression. This happened both in 1948 and in 1953.

Monetary policy is the other branch of discretionary anti-depression (or, more generally, stabilization) measures. It is controlled by the Federal Reserve System. During post-war recessions,

money has been made easier and the cost of borrowing sharply reduced by the Federal Reserve banks. This was done through a reduction of discount rates and through purchases of Government securities in the open market. It is a fact that during the post-war period the weapons of monetary policy have been wielded by the Federal Reserve System with much greater energy and promptness than during the inter-war period; the contrast is especially sharp—and favourable—with the lack of vigour displayed during the Great Depression, when the Federal Reserve stood by while the money stock fell sharply (by about one third) and the economy underwent a disastrous deflation.

Compared with the automatic stabilizers, discretionary anti-depression policies suffer from a serious handicap: lags in the adoption and operation of discretionary policies.

These lags are of different natures. There is first what might be called the “diagnostic” lag. If anti-depression policies are to be adopted promptly, the minimum requirement is that the onset and the end of a depression be promptly diagnosed. This is by no means easy, and there are many cases on record in which the majority of experts failed to recognize a cyclical turning point until months after it had occurred—or else they took what turned out to be a temporary ripple for a true cyclical turn. Once the correct diagnosis has been made there is likely to be a ‘policy’ lag, for administrative and political reasons, before effective measures are taken. This is true especially of fiscal measures. For example, tax changes require an act of Congress, and it usually takes some time before money voted for public works is actually spent. The policy lag has been reduced, and it may be possible to reduce it further, but it still exists and will probably never be eliminated completely.

The policy lag is less important in the case of monetary policy. The Federal Reserve can act without delay and in recent times has often acted very promptly. But in this area there is still another lag, namely, an “operational” lag between the adoption of monetary measures (for example, an easy money policy) and the monetary measures on the volume of actual expenditures. Whether the lag is six months, a year or longer, and whether it is always about the same remains an open question.

Now, assuming first that these lags exist, it is easy to see that

in case their combined length is almost the length of a recession, discretionary anti-recession policies will have their effect too late. Thus the policy becomes destabilizing rather than stabilizing. There have, in fact, been clear cases in recent years when anti-recession spending policies became effective only after the recession was over, fanning the fires of inflation instead of alleviating the recession.

If recessions were longer than they actually have been since the war, it would be easier to deal with them by discretionary anti-recession policies. But for the short recessions which we have experienced in recent times, our discretionary policy instruments are simply too crude.

Our powers of prompt diagnosis have been improved, although they are still far from being perfect, especially in view of the fact that the true cyclical situation is often obscured and distorted by outside disturbances such as a nation-wide steel strike or influences from other parts of the world. But even if the diagnostic lag could be eliminated and the policy lag greatly reduced, there would still remain the operational lag. It follows that in order to avoid destabilizing effects it would be necessary to apply the anti-recession measures well in advance of the cyclical turns. This requires forecasting.

Unfortunately, economists have not yet been successful in predicting business cycle turns. It is true that National Bureau of Economic Research experts have developed "leading indicators"—time series and combinations of such series that usually turn the cyclical corners well in advance of the turning points in general business. These indicators are now being published in the Department of Commerce monthly bulletin, *Business Cycle Developments*. But the method is still in an experimental stage. The lengths of the lead of the various series over the business cycle turning point differ from one another, and they are often quite long and change from one turning point to the other. While the development of the leading indicators constitutes a great advance in our knowledge of cyclical movements and has greatly improved our diagnostic powers, it cannot be regarded, and does not claim to be, a reliable method of forecasting business cycles. Moreover, if and when it yields reliable forecasts, and policies are based thereon, the pattern of leads and lags is

likely to change and we would have to look for other indicators. The economic weather is not immune to forecasts of its future course if these forecasts become the basis for preventive policies of governments and of anticipatory actions of private business.

For these reasons, it does not seem to me probable that it will be possible to iron out, or to reduce much more than we have already done, the mild cyclical swings which our economy has experienced during the post-war years.

Nonetheless, the great readiness which today exists to step in with anti-depression fiscal and monetary policies has stabilizing effects in an indirect but very important manner. It is a safeguard against long and deep depressions, and that this safeguard has been more and more accepted as effective by the business community has created an atmosphere of long-run optimism which has made long-run investment plans fairly immune to short-run setbacks. In the post-war period, long-term investment plans have been affected less than previously by recessions because there is increasing confidence that no long and deep depression will develop. This has helped, along with the operation of the built-in stabilizers, to prevent recessions from snowballing into deeper depressions.

The decline in output during the post-war depressions has to a large extent been confined to a drop in inventories and was due to a smaller extent than in former cycles to a reduction in investment in plant and equipment. How quickly in an environment of gloom and pessimism a setback can spiral into a deep depression is shown by the very sharp and fast (though short) slump in output which occurred in 1937-38.

At this point, one may ask: Aren't there other measures, besides built-in stabilizers and discretionary fiscal and monetary policy, that would eliminate the business cycle altogether? Let me suggest, very briefly, an answer, although I cannot pretend that my views express the consensus of the great majority of economists. My answer is that it could be done—but only at the price of a degree of Government control of the economy greater than most responsible people, if they realise all the implications, would be prepared to recommend.

To suppress the cycle altogether, and maintain uninterrupted stability at full employment, we would need to keep the economy

continuously under strong inflationary pressure; at the same time, we would have to prevent runaway inflation by a maze of controls over prices, wages, investments, foreign trade and payments, and relax those controls selectively when and where slack and unemployment threatened to appear. Such a system of "repressed inflation" could effectively suppress the cycle, although it could hardly prevent a gradual rise in prices and would surely be detrimental to long-run growth.

This is, indeed, the system of war economics which many European countries carried over into peacetime. But the longer the "high pressure system" has been continued in peacetime, the more it has been found inefficient, wasteful and distasteful. In one country after the other it has been abolished, the controls dismantled and the price mechanism and free markets restored. Those countries, such as Germany and Italy, which were fortunate enough to get rid of the high pressure system soon after the war, have consistently outproduced those that have hung onto the system of high pressure and controls. And with the disappearance of high pressure and controls, mild cyclical swings—milder than in the U.S. but essentially of the same nature—have reappeared in Europe.

It is true that in the last seven or eight years the U.S. has not outproduced continental Europe or Japan. On the contrary, the rate of growth of GNP has been less in the U.S. than in those areas, and there has been much dissatisfaction with the performance of the U.S. economy. The true nature and causes, and possible remedies, of this apparent slowdown are very complex, and I will discuss only one aspect which is closely connected with what has been said earlier.

I mentioned that we may have to pay a price for the high level of stability which was achieved during the post-war period. This is the gradual rise in price level. During business cycle upswings, the price level rose, and as soon as contraction started, built-in stabilizers and discretionary and anti-recession policies went to work so that the price level remained stable, or even continued to creep up slowly. During no period since the middle 1930's has there been a noticeable drop in the price level. This is a new phenomenon which has created a greater sensitivity on the part of the public to further price rises. It has caused—along with

other developments—a serious weakening in the U.S. balance of payments, especially since 1957.

This has forced the adoption of more restrictive financial policies, or at any rate prevented the adoption of easier money policies. If this could be changed, growth surely would be faster and the unemployment percentage lower over the cycle.

There is an unusually wide agreement among economists to the effect that in recent years the basic reason for inflation has been the excessive push for wage increases. This continuous rise in labour costs, well in excess of what can be absorbed without a price rise by the gradual increase in productivity, puts a nasty dilemma before the monetary authorities: by monetary expansion, they can let prices rise, and the balance of payments deteriorate; or they can, by keeping money tight and interest rates high, resist the trend of rising costs and prices and thus permit to appear an amount of unemployment large enough to check pressure for higher wages. What they have been doing is, in fact, a policy of compromise, permitting some price rise and some unemployment and slowdown of growth. If there were a little more money wage discipline and money wage rose not more (or still better, a little less) than the overall rise in labour productivity, it would be much better all around: the price level would remain stable (or still better, decline a little bit), unemployment would be lower, GNP would rise faster, and the balance of payments could get back into equilibrium (barring adverse developments abroad). As a consequence, real incomes in general, and *real* wages in particular, would be higher and rise faster. The business cycle would still be with us, but its swings would play around a steeper rising trend, and if the fear were removed that a vigorous anti-recession policy will give a boost to creeping inflation, a better job could be done of counteracting and offsetting recessions.



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## INTRODUCTION

As has been explained in the Preface, this book  
*Purpose of the book.* is a first step in a more extended enquiry undertaken by the Economic Intelligence Service of the Secretariat of the League of Nations into the causes of the recurrence of periods of economic depression.

The present study confines itself to the task of analysing existing theories of the business cycle and deriving therefrom a synthetic account of the nature and possible causes of economic fluctuations. However, the next stage in this investigation—the application, as far as possible, of quantitative tests to the various causal hypotheses—has largely influenced the manner in which the preliminary problem has been approached in the following pages. The reader is invited to keep in mind, while studying the present report, the fact that it is planned as but a part of a greater whole.

In view of the scope of the investigation as a  
*Analysis of theories.* whole, the purpose of the first part of this report—i.e., of the Systematic Analysis of the Theories of the Business Cycle—is not to present a history of the development of economic thought on this subject (although every attempt has been made to interpret as accurately as possible the meaning of the various writers whose theories are discussed), nor to give anything like an exhaustive bibliography of business-cycle theory. The purpose is rather to gather together various hypotheses of explanation, to test their logical consistency and their compatibility with one another and with accepted economic principles. It is intended to give a rounded picture of the possible explanations of economic fluctuations and it is hoped that, by theoretical reasoning, the number of these possibilities can be considerably reduced.

The second part of the present report—the “*Synthetic Exposition relating to the Nature and Causes of Business Cycles*”—contains the comprehensive explanation which emerges from the analysis of theories in the first part. As has been said, it does not claim to be an entirely new theory, but a synthesis and development of existing theories, so far as they can be synthesised. What is presented there is furthermore not a closed and rigid system, but a flexible and open one: there are many points where no definite solution can be proposed, but where the existence of a number of possibilities will be indicated. The choice between these can then be made only on the basis of empirical investigations. In many cases, theoretical reasoning supported only by such broad facts as one happens to know without special statistical or historical investigations can put intelligent questions, but cannot definitely answer them.

That by analysing various theories it should be possible to give an explanation of the business cycle which, while leaving some questions open or offering in other cases alternative answers, nevertheless clarifies a number of problems presupposes that the difference between the theories analysed is not so radical as is sometimes believed. In fact, the assumption is that the real differences in opinion have been frequently exaggerated, and that, for certain important questions, a much greater harmony between writers of different schools can be established than the superficial observer would believe or even than these same writers would be willing to admit. It is a natural thing that most writers are inclined rather to dwell on the controversial issues than to stress the points of general agreement. Here the opposite principle will be followed and, in the following sections, it will be shown how theories which seem *prima facie* to contradict one another can sometimes be reconciled.

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## **Part I**

# **SYSTEMATIC ANALYSIS OF THE THEORIES OF THE BUSINESS CYCLE**





## CHAPTER I

### PRELIMINARY REMARKS

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#### § 1. THE EXPLANATION OF THE BUSINESS CYCLE

Before we begin the exposition of the various theories of the business cycle, some remarks may be advisable on the general logical nature of any explanation of the cycle, and on the mutual relation between various possible explanations (theories). The implications of these observations will be fully realised only in the light of subsequent pages where these formal principles are, so to speak, put to work. Nevertheless, it seems useful to touch upon these things at the beginning in order to avoid misunderstandings. The study of the various theories will be more fruitful if the following general remarks are kept in mind.

Such a complex phenomenon as the business cycle, which embraces almost all parts of the *Plurality of causes.* economic system, does not easily lend itself to explanation by any one factor. Even if we assume from the beginning that the same explanation of the business cycle holds good in the highly industrialised countries of Western Europe and America as well as in industrially less developed countries such as New Zealand or Roumania, and in the twentieth century as well as at the beginning of the nineteenth—neither of which assumptions is by any means self-evident—it is not easy to speak of *the* cause of the business cycle. Few writers have ventured to proclaim just one single factor as *the* cause of the business cycle or of depression in particular. In fact, explanations which run in terms of one single cause have been more and more discredited and should be regarded with suspicion. The majority of modern writers on the subject are careful to point out that a whole set of factors, and perhaps not always the same combination

of factors, contribute towards producing an alternation of prosperity and depression. Frequently, the difference between various theorists is rather a difference in the emphasis laid upon the different factors than a difference in the enumeration of contributing causes and conditions.

Even those writers whose theory centres round one single factor which they make responsible for the business cycle—*e.g.*, crop variations, or inventions, or the acceleration of derived demand, or changes in demand, or waves of optimism and pessimism—are forced to admit that what they call *the* cause of the business cycle can produce its effect only in a certain economic institutional environment. They assume, explicitly or implicitly, a certain structure of the exchange economy, a certain rigidity of wages and contracts, a certain behaviour of investors, the presence or absence of a certain amount of knowledge and foresight amongst entrepreneurs, a certain monetary organisation, etc. The business cycle might well not appear (*a*) if those “active” forces (crop changes, inventions, changes in demand, etc.) were absent, or (*b*) if one or several of the significant features in the economic institutional framework were changed ; if, for example, wages and contracts were perfectly plastic, if entrepreneurs behaved in a different way, if they possessed perfect foresight or if the monetary organisation were different and monetary authorities took steps to prevent repercussions : in a word, if they were to behave differently from what they actually do.

It might therefore just as well be maintained that the rigidity of our economic system, or its financial or monetary organisation, or particular features of the latter, are the causes of the cycle as that inventions or crop changes or changes in demand are responsible.

Normally, a complex phenomenon such as the business cycle is caused and conditioned by a large number of factors and circumstances. *Theories differ mainly as to emphasis.* Even if the same theory holds good for all cycles, there is still room for a multitude of “different” explanations which need not all be logically exclusive and contradictory. Each of them stresses one or other of the relevant factors and conditions and calls it the “dominant” or

“causally relevant” one. The other factors are neglected, or it is assumed that they do not change or cannot be changed, or that it is for some reason not desirable to change or eliminate them (*e.g.*, inventions) or that their changes cannot be further explained (at least not by the economist) and that they must therefore be taken for granted. In particular, monetary and non-monetary explanations of the business cycle seem to be frequently reconcilable. The non-monetary theorist (who stresses, *e.g.*, the impact of inventions, or changes in demand with intensified changes in derived demand) often tacitly assumes—or ought logically to assume—the willingness and ability of the banking system to expand credit on existing terms, whereas the monetary theorist takes such disturbing events as inventions or changes in demand for granted and blames the monetary authorities for not adjusting the terms of credit.

These considerations suggest that it is useful

*Classification* to distinguish certain types of causal factors.

*of causal* One may draw a distinction, for instance,

*factors.* between active and passive factors or, in other words, between causes and conditions or between

conditions *per quam* and conditions *sine qua non*. Inventions, crop changes, changes in demand are active factors, while institutional circumstances such as are mentioned above should be classified as passive conditions. Sometimes this distinction may be useful; but frequently it is difficult or impossible to draw a sharp line between the two types of factors. How is it possible to decide whether any given action on the part of the banks, such as lowering the discount rate when reserves are running high or failure to raise the rate when the demand for credit rises (*i.e.*, when the “natural rate” has risen), is an “active” or a “passive” factor? This is obviously a terminological question and it is fruitless to press for an answer in every single case.

The real distinction—in some cases—is between *controllable* and *uncontrollable* factors.<sup>1</sup> The weather, *e.g.*, is uncontrollable, while institutional factors are at least in theory controllable.

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<sup>1</sup> Cf. J. M. Clark, *Strategic Factors in Business Cycles*, New York, 1935, pages 4-5 and *passim*.

Among factors, furthermore, which can in principle be controlled, there are those which one does not find it desirable, for one reason or another, to control or to eliminate altogether—*e.g.*, inventions, or the liberty of the recipient of income to spend his income or to save it, or to exercise freedom of choice in regard to his consumption or occupation. Needless to say, opinion as to what it is possible and desirable to control or influence varies from time to time and from person to person.

A more usual if less pragmatic classification is that of causes which originate within and causes which originate outside the economic system. Wars, inventions, crop changes (so far as they depend on the weather and are not economic adjustments to changes in demand, prices or cost), spontaneous changes in demand (so far as they are due to changes in taste and are not simply a reaction to changed supply conditions) are examples of outside causes. Changes in production due to changed demand conditions, price changes due to rise in cost, intensified demand for producers' goods due to changes in demand for consumers' goods are examples of economic causes. But what is to be called an *economic* and what a *non-economic* factor or circumstance is frequently rather a matter of convention than of argument.

Closely connected with the distinction between *Exogenous* and economic and non-economic factors and causes is *endogenous* the distinction between "*exogenous*" and "*endogenous*" theories. *theories.* *nous*" theories of the business cycle. Exogenous theories are those which assume external disturbances—*e.g.*, crop changes or inventions—in order to explain the business cycle. Endogenous theories rely exclusively on movements which can be explained economically. This distinction, too, is not always definite. Is the monetary theory, which explains the business cycle in the light of certain actions or a certain policy on the part of the banking authorities, to be regarded as exogenous or endogenous? If the banks lower the rate of interest, thereby inducing a credit inflation, their action will presumably be regarded as an exogenous factor: but suppose they do not raise the rate sufficiently in face of a rising demand for credit (due, *e.g.*, to inventions) with the same result in the shape of a credit inflation—is that the operation of an exogenous factor?

It has been attempted to give more precision to the distinction between exogenous and endogenous theories by saying that the former assume movements in the data, while the latter suppose the data to remain constant.<sup>1</sup> This distinction is precise enough once the general theoretical system on which a writer builds his theory of the business cycle has been determined and accepted; but it is not possible to lay down beforehand once and for all what phenomena are to be regarded as accepted data and what are magnitudes to be explained and determined in the light of those data. What the theory of yesterday accepted as data, we try to explain to-day; and the independent variables (data) on which we build to-day may become dependent variables to-morrow. All attempts to make a definite distinction between data and results lead back to the earlier conception which regards forces or movements of a "non-economic" nature or "external" to the economic system as the "data" of economic theory. But this distinction between "economic" and "non-economic" phenomena is a purely conventional one. There is no reason why forces or movements not to be classified as economic should not become "dependent" or "explained" variables of a general—as distinct from an economic—theory.

With very few exceptions, all serious explanations are neither purely exogenous nor purely endogenous. In almost all theories, both the "originating factors" and the "responses of the business system" (to use the expression of J. M. CLARK<sup>2</sup>) play a rôle. On the one hand, a purely exogenous theory is impossible. Even if one assumes a weather cycle, the peculiar response of the business system, which converts harvest variations into a general alternation of prosperity and depression, has still to be explained. On the other hand, a purely endogenous theory is hardly satisfactory. It is not likely that, without outside shocks, a cyclical movement would go on for ever : and, even if it did go on, its course would certainly be profoundly influenced by outside shocks—that is, by changes in the data (however these may be defined and delimited by economically explained variables).

<sup>1</sup> See especially Tinbergen : " Suggestions on Quantitative Business Cycle Theory " in *Econometrica*, Vol. III, No. 3, July 1935, page 241.

<sup>2</sup> See his book : *Strategic Factors in the Business Cycle*, *passim*.

The interaction of exogenous and endogenous forces is intricate, and the logical possibilities of their mutual impacts are numerous. We shall not, however, discuss these problems in the abstract here at the beginning. They will find their solution as we proceed in our theoretical enquiry, especially in Part II of the present report.

One methodological rule of thumb may be suggested at this point, however, although it will find its full justification only later. For various reasons, it seems desirable, in the explanation of the business cycle, to attach as little importance as possible to the influence of external disturbances.

In the first place, large swings in the direction of prosperity and depression as we find them in real life are difficult to explain solely by exogenous forces; and this difficulty becomes an impossibility when the alleged "disturbances" do not themselves show a wavelike movement. Even if a periodic character is assumed (*e.g.*, in the case of crops or inventions), the hypothesis is full of difficulty. The responses of the business system seem *prima facie* more important in shaping the business cycle than external shocks. Secondly, historical experience seems to demonstrate that the cyclical movement has a strong tendency to persist, even where there are no outstanding extraneous influences at work which can plausibly be held responsible.<sup>1</sup> This suggests that there is an inherent instability in our economic system, a tendency to move in one direction or the other. If it is possible (as we believe) to demonstrate that such a tendency exists and to indicate the conditions under which it works, it will be comparatively easy to fit all kinds of external perturbations, including all State interventions, into the scheme. Exogenous forces will then figure as the originators or disturbers of endogenous processes, with power to accelerate, retard, interrupt or reverse the endogenous movement of the economic system.<sup>2</sup>

<sup>1</sup> What is to be regarded as "outstanding" and "plausible" is, of course, a matter of dispute. As there is always something happening somewhere, it is always possible to find some external events which can be made the basis of a tentative explanation.

<sup>2</sup> For this reason, anything like perfect regularity in respect of the amplitude, length, intensity and concomitant symptoms of the cyclical movement is *a priori* improbable.

A frequently used analogy may be adduced, not *Mechanical* to prove anything, but to make the meaning of *analogy.* what has been said clearer. We can compare the economic system with a pendulum or with a rocking-chair. A rocking-chair may be made to perform fairly regular swings by quite irregular impulses (shocks) from the outside. (Besides it may conceivably have a mechanism installed which makes it swing without outside forces operating on it.) In the explanation of the movement of the chair we must now distinguish two factors : the structure of the chair and the impulses from the outside—endogenous and exogenous factors. The structure of the chair is responsible for the fact that irregular shocks are transformed into fairly regular swings. An ordinary chair would ordinarily respond quite differently, although some particular kinds of impulses are thinkable (regular pushes and pulls) which would make it move in regular swings.

Naturally, the structure of the rocking-chair—and hence the nature of the swings produced by external shocks—may be very different in detail. The system might be so constructed that incessant regular swings are produced if, after having been pushed, the system is left to itself. Or else the swings may gradually disappear—that would be the case with an ordinary rocking-chair; we speak in that case of “damped oscillations” and may distinguish various degrees of dampening. The opposite may be true, the swings may become more and more violent; the fluctuations are then said to be “explosive” or “antidamped”, or the system is in an unstable equilibrium.

The methodological suggestion made above then comes to this. We tentatively assume that, for the explanation of the fairly regular swings of the economic system (just as for those, of the rocking-chair), it is more important to study the peculiar structure of the system and hence its responses to outside shocks than to look for regularities in the occurrence of these shocks. This hypothesis is, of course, subject to subsequent confirmation or rejection.

If, therefore, in many of the following sections, not much is said about such external influences (and in particular about the various forms of intervention in the economic process by the State or other public bodies, which figure so prominently in the

daily comments of economists, politicians and economic journals on contemporary events), this must not be taken to imply that, in our opinion, or in the opinion of the writers whose theories are reviewed, these factors do not influence the economic situation. Our object is in the first instance to isolate the responses of the economic system, in order to stage the scene and to describe the environment in which the external influences have play.

## § 2. METHOD OF THE FOLLOWING ANALYSIS

The scope of the following analysis of theories *Principles of selection.* has been defined in the Introduction (page 1).<sup>1</sup> The method followed in the exposition is thereby largely determined. No attempt has been made to present the various theories in chronological order or to picture the theoretical and sociological background of the various writers (except in so far as it may have been necessary in order to elucidate their doctrines). It has been preferred to present the theories in a systematic order, beginning (so far as possible) with the less complicated and proceeding thereafter to the more complicated. Frequently it happens that the latter cover all the factors on which the former lay stress, while drawing attention to others which the former have overlooked or treated as irrelevant or put aside by means of a convenient simplifying assumption (*e.g.*, by a *ceteris paribus* clause).

It has been necessary to select certain authors or certain works as illustrative of the various lines of thought. Preference has been given, where there was no reason to the contrary, to the more recent and more accessible works. No attempt has been made to trace every thought or hypothesis back to its origin in the history of economic doctrines.

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<sup>1</sup> This special purpose explains the difference between the following exposition and the classification of theories and theorists given in such works as A. H. Hansen : *Business Cycle Theories*, Boston, 1927 ; W. M. Persons : " Theories of Business Fluctuations " (*Quarterly Journal of Economics*, Vol. 41, reprinted in *Forecasting Business Cycles*, New York, 1931) ; F. A. Hayek : *Monetary Theory and the Trade Cycle*, London, 1933 ; Macfie : *Theories of the Trade Cycle*, London, 1934.



Naturally, the work of those writers who have themselves attempted a synthesis of theories—such as MITCHELL, PIGOU, ROBERTSON—had to be mentioned at several points in connection with the various lines of thought which they have incorporated in their systems. Mention is not made, however, at every point of all the writers who have made useful contributions to the problem in hand. The method followed has been dictated by the purpose of the present enquiry : it does not pretend to do justice to the originality and importance of different writers' contributions. It is not intended to be an appraisal of the merits of various writers, but a review and analysis of explanatory hypotheses.

The various theories under review have been  
*Heads of* examined, as far as possible, under the following  
*analysis.* heads :

General characteristics.

Explanation of the upswing (prosperity).

„ „ „ upper turning-point (crisis).

„ „ „ downswing (depression).

„ „ „ lower turning-point (revival).

Reasons given for recurrence, periodicity, etc.

International complications.

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## CHAPTER 2

## THE PURELY MONETARY THEORY

## § 1. PRELIMINARY REMARKS

Money and credit occupy such a central position in our economic system that it is almost certain that they play an important rôle in bringing about the business cycle, either as an impelling force or as a conditioning factor. During the upswing, the physical volume of production and of transactions grows while prices rise or, in some rather exceptional cases, remain constant.<sup>1</sup> This means that the money volume of transactions rises. During depression, the money volume of transactions falls. In other words, the work which money must and does perform rises and falls with the ups and downs of the business cycle.<sup>2</sup> It follows, then, that the product ( $MV$ ) of the quantity of money ( $M$ ) and its velocity of circulation ( $V$ ) rises and falls. This does not necessarily mean that the rise and fall of  $M$  and/or  $V$  is in all cases the active cause of changes in business activity : it may equally well be a passive condition or even a mere symptom. It is conceivable that  $MV$  may adjust itself automatically to changes in the volume of business without exerting any influence by itself. But, in any case, the analysis of a theory which puts the monetary factor at the centre of its scheme of causation will almost certainly reveal

<sup>1</sup> The outstanding example of a boom without a rise in prices is the American boom of 1926-1929. The stability of prices was, however, confined to the wholesale-price level. A more general price index (as constructed by Mr. Carl Snyder) shows a marked rise.

<sup>2</sup> It should be noted that this is not implied by the definition of prosperity and depression. It is conceivable that the rise and fall of the volume of production might be accompanied by an opposite movement of prices, so that the money value of the volume of production or of transactions in general would remain constant or even vary inversely with the physical volume.

important features of the business cycle which no adequate synthesis can afford to neglect.

§ 2. THE THEORY OF MR. R. G. HAWTREY:  
GENERAL CHARACTERISTICS

The purely monetary explanation of the *Importance of consumers' outlay.* business cycle has been most fully and most uncompromisingly set out by Mr. R. G. HAWTREY.<sup>1</sup> For him the trade cycle is "a purely monetary phenomenon" in the sense that changes in "the flow of money" are the sole and sufficient cause of changes in economic activity, of the alternation of prosperity and depression, of good and bad trade. When the demand for goods in terms of money (that is, the flow of money) grows, trade becomes brisk, production rises and prices go up. When demand falls off, trade slackens, production shrinks and prices sag. The flow of money—*i.e.*, the demand for goods in terms of money—is proximately determined by "consumers' outlay", that is, by expenditure out of income.<sup>2</sup> Consumers' outlay comprises, however, not only expenditure on consumers' goods, but also expenditure on new investment goods—that is to say, that part of consumers' income that is saved and invested. (For consumers' outlay, one can substitute  $MV$ , if one defines " $V$ " as "income velocity", in contradistinction to "transaction

<sup>1</sup> See *Good and Bad Trade*, London, 1913; *Monetary Reconstruction*, 1923, 2nd ed., 1926; *Currency and Credit*, 1919, 1923, 1928; *Trade and Credit*, 1928; *Trade Depression and the Way out*, 1931, 1933; *The Art of Central Banking*, 1932; *The Gold Standard in Theory and Practice*, 3rd ed., 1933; *Capital and Employment*, 1937.

<sup>2</sup> See, especially, *The Art of Central Banking*, London, 1932, Chapter III. Independently, very similar ideas have been expressed by Professor Albert Hahn in his earlier writings. See his *Volkswirtschaftliche Theorie des Bankkredits*, 1st ed., 1924 (3rd ed., 1930). Since then he has, however, changed his view considerably.

Many of the propositions advanced by Mr. Hawtrey and reviewed in the following pages, especially those on the relation between interest rates and prices, have had a long history and were given an early expression in A. Marshall's evidence before the Gold and Silver Commission, 1887. (See *Official Papers of A. Marshall*, 1926, pages 52 and 131, reproduced and elaborated in his *Money, Credit and Commerce*, pages 75-76 and 254-257.)

velocity" as it figures in IRVING FISHER'S famous equation of exchange. But,  $V$  being thus defined as the ratio of consumers' outlay to the quantity of money, the two magnitudes— $MV$  and consumers' outlay—are by definition the same; and not much is gained by the substitution of one expression for the other.)

Non-monetary factors such as earthquakes, wars, strikes, crop failures, etc., may produce a general impoverishment: others, such as harvest changes, over-development of certain industries (e.g., over-investment in constructional industries), may produce a *partial* depression in particular branches of industry. But a general depression in the sense of the trade cycle—i.e., a situation in which unused resources and unemployment are general—cannot be induced by non-monetary forces or events except in so far as they give rise to a fall in consumers' outlay—i.e., in the flow of money.

Changes in consumers' outlay are principally due to changes in the quantity of money. *Instability of money and credit.* Everyone agrees that a sudden diminution in the quantity of money, an outright deflation, has a depressing influence on economic activities, and that an increase of the circulating medium, an inflation, has a stimulating influence.

If the quantity of money diminishes, demand falls off, and producers who have produced in anticipation of the usual demand will find that they cannot sell the usual output at the anticipated prices. Stocks will accumulate; losses will be incurred; production will fall; unemployment will be rife; and a painful process in which wages and other incomes are reduced will be necessary before equilibrium can be restored.

Inflation has the opposite effect. Demand exceeds anticipations, stocks decrease, dealers give larger orders to producers, and prices rise. Production increases and unemployed factors of production are gradually absorbed.

This is the familiar picture of a "Government deflation or inflation". According to Mr. HAWTREY, the trade cycle is nothing but a replica, on a small scale, of an outright money inflation and deflation. Depression is induced by a fall in consumers' outlay due to a shrinkage of the circulating medium, and is intensified by a decline in the rapidity of the circulation of money. The prosperity

phase of the cycle, on the other hand, is dominated by an inflationary process.

If the flow of money could be stabilised, the fluctuations in economic activity would disappear. But stabilisation of the flow of money is no easy task, because our modern money and credit system is inherently unstable. Any small deviation from equilibrium in one direction or the other tends to be magnified.

Mr. HAWTREY starts with the assumption that, in the modern world, bank credit is the principal means of payment. The circulating medium consists primarily of bank credit, and legal tender money is only subsidiary. It is the banking system which creates credit and regulates its quantity. The means of regulation are the discount rate and open-market purchases and sales of securities. The power to expand credit is not, of course, vested in each individual bank, but in the banking system as a whole. A single bank cannot go very far in expanding credit on its own account; but the banking system as a whole can, and there is a tendency to make the whole system move along step by step in the same direction. If one bank or group of banks expands credit, other banks will find their reserves strengthened and will be induced, sometimes almost forced, to expand too. In this way a single bank or group of banks may carry with it the whole system.

(These are familiar propositions of modern banking theory. It does not seem necessary at this point to work them out in detail with all necessary qualifications.)<sup>1</sup>

### § 3. THE UPSWING

The upswing of the trade cycle is brought about by an expansion of credit and lasts so long as the credit expansion goes on or, at least, is not followed by a credit contraction.

A credit expansion is brought about by the banks through the easing of conditions under which loans are

<sup>1</sup> Cf., e.g., the exposition in Keynes' *Treatise on Money*. The history of thought on this subject has been written in great detail by V. Wagner, *Geschichte der Kredittheorien*, Vienna, 1936, and A. W. Marget, *The Theory of Prices: A Re-examination of the Central Problems of Monetary Theory*, Vol. I., New York, 1938.

granted to the customer. Borrowing may be encouraged in various ways. The banks can apply a less severe standard to security offered; they can increase the maximum period for which they are willing to lend; they can refrain from discriminating as to the purpose for which the borrower wants the loan. But the principal instrument of expansion is a reduction of the discount rate; and each of the other measures is equivalent in some way to a reduction in the costs of credit.

Mr. HAWTREY is aware of the objection, which *The strategic position of* 1 or 2% in the interest on bank advances is too *the merchant*. unimportant an item in the profit-and-loss account of the average business-man to induce him to expand his business and to borrow more. His answer to this objection is that there exists one class of business-men which is very sensitive even to small changes of the rate of interest—namely, the merchants. The merchant buys and sells large quantities of goods compared with his own capital, and he adds to what he buys the relatively small value which represents the dealer's profit. To him, a change in interest charges of 1 or 2% is not negligible, as it is perhaps to the manufacturer. It is not denied, of course, that there are other considerations besides the rate of interest which might induce a merchant to borrow more (or less) and to increase (or reduce) his stocks of goods. If prices are expected to rise, or if a fall is anticipated, a reduction in the interest rate may be unnecessary or insufficient. But a general rise or fall in prices sufficient to induce the majority of merchants to increase or decrease their borrowing, irrespective of minor changes in the rate of interest, is unlikely to occur except as a consequence of an expansion or contraction of credit and will be discussed later.

Thus, according to Mr. HAWTREY, the merchant is in a strategic position. If the rate of interest is sufficiently reduced—and in ordinary circumstances a slight reduction is sufficient—merchants are induced to increase their stocks. They give larger orders to the producer. Increased production leads to an enlargement of consumers' income and outlay. This "means increased demand for goods in general, and traders find their stocks diminishing. There result further orders to producers, a further increase in

productive activity, in consumers' income and outlay, and in demand, and a further depletion of stocks. Increased activity means increased demand, and increased demand means increased activity. A vicious circle is set up, a cumulative expansion of productive activity",<sup>1</sup> which is fed and propelled by a continuous expansion of credit.

"Productive activity cannot grow without limit. As the cumulative process carries one industry after another to the limit of productive capacity, producers begin to quote higher and higher prices."<sup>1</sup> When prices rise, dealers have a further inducement to borrow. Rising prices operate in the same way as falling interest charges : profits are increased and traders stimulated to hold larger stocks in order to gain from a further rise in prices. In the same way, the producer is stimulated to expand production and to borrow more freely in order to finance the increased production. The cumulative process of expansion is accelerated by a cumulative rise in prices.

There is yet another accelerating element. *Instability of the velocity of circulation.* In addition to the expansion of the circulating medium, there is an increase in its velocity of circulation. When prices rise and trade is brisk, merchants and producers not only borrow more : they use up any idle balances which may be at their disposal. Idle balances are the inheritance of the previous depression. If they exist to a large extent, "it may be that an enlargement of the consumers' income and outlay is brought about with little or no expansion of the outstanding bank credit".

"Thus there is a principle of the instability of velocity of circulation, which is quite distinct from the principle of the instability of credit, but is very apt to aggravate its effect."<sup>2</sup>

To sum up, expansion is a cumulative process—that is to say, once started, it proceeds by its own momentum. No further encouragement from the banks is required. On the contrary,

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<sup>1</sup> *The Art of Central Banking*, page 167.

<sup>2</sup> *Op. cit.*, page 171.

banks have then to be careful not to let the expansion get out of hand and degenerate into wild inflation. They should raise the rate of interest drastically : slight increases will not deter people from borrowing if prices rise and are expected to rise further. That is what is meant in saying that the process has gained momentum. A discount rate which would have sufficed to nip the expansion in the bud would later be much too low to stop it.

#### § 4. THE UPPER TURNING-POINT

Prosperity comes to an end when credit expansion is discontinued. Since the process of expansion, after it has been allowed to gain a certain speed, can be stopped only by a jolt, there is always the danger that expansion will be not merely stopped but reversed, and will be followed by a process of contraction which is itself cumulative. (There are other reasons for this, which will be discussed presently.)

"If the restriction of credit did not occur, the active phase of the trade cycle could be indefinitely prolonged, at the cost, no doubt, of an indefinite rise of prices and an abandonment of the gold standard."<sup>1</sup>

Man-made limitations on the amount of the *The wage-lag*, circulation—that is, limitations imposed by *the cash drain* law and custom—constitute the barrier which *and the* prevents our present economic system from *gold standard*. getting rid of its cyclical movement with all its bad consequences. So long as there is a gold standard, or other restriction in the supply of legal tender money (*e.g.*, that involved in the attempt to stabilise the exchange rate *vis-à-vis* another country which does not itself expand credit), the banks are sooner or later forced to stop expansion and even to contract.

Cash—*i.e.*, legal tender money—is predominantly used for small and retail transactions, because for these purposes credit has no

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<sup>1</sup> *Trade and Credit*, London, 1928, page 98.



greater convenience to compensate for its inferior security. The amount of cash which passes into circulation depends largely on the incomes, expenditures and hoards of working-men. An expansion leads sooner or later to a drain of cash out of the holdings of the banks while, as earnings and wage rates rise, an increasing amount will be retained in cash balances. This, however, is a slow process, because the rise in wages lags considerably behind the expansion of credit and the rise in prices and profits. Meanwhile, the central bank, in its anxiety to maintain exchange stability, declines to supply cash to the commercial banks indefinitely. The latter are therefore forced to put the brake on and to stop the expansion. When they start to do this, the cash holdings of the working population still continue to increase—by reason of their lag behind the credit expansion—and go on rising after the expansion has come to an end. This induces the banks, not merely to stop expanding, but actually to contract; and so the depression is given its start.

#### § 5. THE DOWNSWING

The process of contraction is cumulative. *The reverse* no less than the process of expansion. “When *of the upswing*, credit has definitely turned the corner, and a contraction has succeeded to an expansion, the downward tendency of prices is sufficient to maintain the process of contraction, even though the rate of interest is no longer, according to the ordinary standards, high.”<sup>1</sup>

The process is cumulative for the following reason. When prices are falling, merchants expect them to fall further. They try accordingly to reduce stocks, and give smaller orders, or no orders at all, to producers. Consumers' income and outlay decrease; demand flags; stocks accumulate in spite of endeavours to reduce them; borrowing is reduced further—and so on in a long and painful process. All the factors which tended to stimulate the upswing conspire now to push contraction further and

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<sup>1</sup> *Currency and Credit*, 3rd ed., London, 1928, page 153.

further. The vicious spiral downward is in all respects the negative counterpart of the vicious spiral upward. The details need not be repeated.

## § 6. REVIVAL

During a depression, loans are liquidated and *Sufficiency* gradually money flows back from circulation into *of credit* the reserves of the banks. The reserve ratio *expansion.* becomes normal, and reserves above normal are slowly built up. Interest is by this time fallen to an abnormally low level; but, with prices sagging and with a prevalence of pessimism, it may be that even an exceedingly low level of interest rates will not stimulate people to borrow. According to Mr. HAWTREY, however, there are almost always some people who are willing to increase their borrowing; and this should enable the banks to get over the dead point. But if, as happens in abnormally deep depressions, pessimism is so widespread that no rate above zero will induce an expansion, the central bank has another weapon for overcoming the reluctance of the business community to make use of existing credit facilities—and that is the purchase of securities in the open market.

When the central bank buys securities in the open market, cash is pumped into the banks and their liquidity increases. For a time, the new money may be used to repay debts to the banks, so that the only result is a change in the composition of the assets of the banks (cash increases, loans decrease). But Mr. HAWTREY is confident that eventually, if only the purchases of securities are carried far enough, the new money will find an outlet into circulation, consumers' income and outlay will begin to rise, and a self-reinforcing process of expansion will be started. Mr. HAWTREY believes that the ordinary measures of banking policy—discount policy and open-market operations—may be trusted to bring about a revival and that it is therefore not necessary to have recourse to more drastic methods (such as public works) to start an expansion. This attitude of his is closely connected with his theory that changes in the rate of interest must operate through

influencing working capital rather than through stimulating investment in fixed capital. We shall have to come back to this proposition because it conflicts sharply with the theories of many other writers, with which we shall have to deal.

In his earlier writings Mr. HAWTREY had already mentioned the theoretical possibility of a complete credit deadlock arising. That is a situation where even exceedingly low interest rates fail to evoke a new demand for credit. In such a situation, the ordinary means of bank policy prove wholly ineffective. In his *Good and Bad Trade*<sup>1</sup> he ascribes this phenomenon to the fact that "the rate of depreciation of prices" may be so rapid that "nothing that the bankers can do will make borrowing sufficiently attractive" to lead to a revival in the flow of money.

In more recent publications, under the impression of the slump of the nineteen-thirties, Mr. HAWTREY has modified his views to some extent.<sup>2</sup> He now doubts whether it can be legitimately assumed that "the expectation of falling prices is (always) the result of a preceding experience of a prolonged actual fall"<sup>3</sup> and that such a condition of stagnation is not possible except in the course of a reaction from a riot of inflation.<sup>4</sup>

He still believes that "a failure of cheap money to stimulate revival" is "a rare occurrence", but he admits that "since 1930, it has come to plague the world and has confronted us with problems which have threatened the fabric of civilisation with destruction".<sup>5</sup>

These admissions and qualifications go a long way to meet the objections of those who do not share Mr. HAWTREY's unshakable optimism regarding the efficacy of the traditional methods of banking policy for bringing about a revival.

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<sup>1</sup> 1913, page 186.

<sup>2</sup> Cf. his *Trade Depression and the Way Out*, 2nd ed., pages 29-31 and 133-135, *Capital and Employment*, pages 85-87, "A Credit Deadlock"; and his contribution to *The Lessons of Monetary Experience* (edited by A. D. Gayer), "The Credit Deadlock", pages 129-145.

<sup>3</sup> *The Lessons of Monetary Experience*, page 131.

<sup>4</sup> *Ibid.*, page 131, and *Monetary Reconstruction*, page 133.

<sup>5</sup> *Capital and Employment*, page 86.

Apart, however, from such a contingency, and *Wage-lag and bank policy.* before the war, Mr. HAWTREY describes the transition from depression to prosperity in the following way. During the depression, money begins to flow back to the banks. But, again, there is that lag of the flow of cash behind the movement of credit. As the outflow of cash does not at once follow the expansion of credit, the inflow of cash lags behind the contraction. The consequence is that, when the banks come to the conclusion that they can stop contracting, because their reserves have reached the desirable level, the process of inflow of cash has not yet come to an end. People's cash balances respond slowly. Cash continues to flow in for a considerable time after contraction of credit has been arrested. Surplus reserves accumulate, and these excessive reserves tempt the banks later on to over-expand and so begin another cycle.

#### § 7. RHYTHM AND PERIODICITY

Mr. HAWTREY's theory explains why there are not *Rigid reserve proportions.* merely small oscillations around the equilibrium, but big swings of the pendulum in the one or the other direction. The reason is the cumulative, self-sustaining nature of the process of expansion and contraction. The equilibrium line is like a razor's edge. The slightest deviation involves the risk of further movement away from equilibrium.

But even so, Mr. HAWTREY thinks, the recurrence of the breakdown is not inevitable. The expansion could go on indefinitely, if there were no limits to the increase in the quantity of money. The gold standard is, in the last resort, responsible for the recurrence of economic breakdowns. Under the gold standard, it is the slow response of people's cash balances which prevents the banks from stopping expansion or contraction in time. "If an increase or decrease of credit money promptly brought with it a proportionate increase or decrease in the demand for cash, the banks would no longer either drift into a state of inflation or be led to carry the

corresponding process of contraction unnecessarily far." Given, however, this slow response of the people's cash balances, "so long as credit is regulated with reference to reserve proportions, the trade cycle is bound to recur".<sup>1</sup>

Under the automatic working of the gold standard, "the length of the cycle was determined by the rate of progress of the processes on which the cycle depended, the absorption of currency during the period of expansion and its return during the period of contraction".<sup>2</sup>

Since 1914, the automatically working gold standard has ceased to exist. After the war and post-war inflations, the gold standard—a managed gold standard—was once more restored; but the first major shock upset it. Therefore, according to Mr. HAWTREY, the former marked regularity and periodicity in the alternation of periods of prosperity and depression, of expansion and contraction, can no longer be expected and do not, in fact, any longer exist. "For the time being there is no trade cycle" if by "cycle" is meant a periodic movement of marked regularity. There are, of course, periods of prosperity and depression; for the credit system is still inherently unstable and there are forces more powerful than ever, the operation of which makes for expansion or contraction. But the intricate mechanism which produced the former regularity in the alternation of expansion and contraction is completely dislocated.

Periodicity is not, however, essential for the purposes of Mr. HAWTREY's theory. On the contrary, he is entitled to claim for his theory that it does not postulate exclusively movements of a definite length and regularity. The regular cycle can always be interrupted by non-cyclic forces. It must be admitted that an explanation which is flexible in this respect is preferable—if it is tenable in other respects—to a more rigid one.

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<sup>1</sup> *Monetary Reconstruction*, 2nd ed., London, 1926, page 135.

<sup>2</sup> *Currency and Credit*, 3rd ed., page 155.

## § 8. SPECIAL FEATURES OF THE THEORY

As has been mentioned, Mr. HAWTREY's theory stands in contradiction to many other related theories in that it contends that a change in the rate of interest influences the economic system, not through a direct influence on investment in fixed capital, but through the provision of working capital and particularly stocks of goods. The alternative view will be discussed later. Here it must be asked how Mr. HAWTREY's theory can account for the undoubted fact that the instrumental industries experience greater cyclical fluctuations than the consumption industries. The explanation offered is that activity brings a more than proportional increase in profits; and, as profits (whether reinvested by corporations or distributed to shareholders) are the principal source of savings, the funds available from savings for capital outlay are similarly increased. The disproportionate fluctuations in the instrumental industries are therefore a consequence of changes in consumers' income and outlay, and are not due (as many writers believe) to any repercussions which credit expansion may have—directly, or indirectly through changes in long-term-interest rates—on investment in fixed capital. That credit expansion has a certain effect on investment in fixed capital is not altogether denied by Mr. HAWTREY; but he holds it to be unimportant as compared with the direct influence on the merchant and on working capital.

To complete the picture of Mr. HAWTREY's theory, a word must be said as to the policy banks should pursue in order to eliminate the credit cycle, and with it the trade cycle. The banks, and especially the leaders of the banking system, the central banks, should not watch the reserve proportions so much as the flow of purchasing power. The demand for goods, the flow of money, is the important thing—not the outstanding aggregate of money units. The aim of banking policy should be to keep the consumer's outlay constant, including (as has been pointed out) outlay for new investment. But account should be taken of changes in the factors of production—not merely the growth of population, but

also the growth of capital—and allowance ought to be made for the proportion of skilled labour of varying grades and for the appropriate amount of economic rent. In other words, the aim should be to stabilise, not the price level of commodities, but the price level of the factors of production.<sup>1</sup>

### § 9. INTERNATIONAL COMPLICATIONS

With the purely monetary explanation of the business cycle, it is comparatively easy to account for various kinds of international complications. The analysis of any given international constellation involving two or more countries must invariably turn on the question of how the money supply in each of these countries is likely to be affected. This analysis has not yet been worked out systematically from the standpoint of the explanation of the business cycle. But the instruments of the analysis are ready to hand. The theory of the international money mechanism under different monetary standards is one of the most fully elaborated chapters of economic science.<sup>2</sup>

### § 10. CONCLUDING REMARKS

A feature of particular interest in Mr. HAWTREY's monetary theory of the business cycle is the demonstration and analysis of the cumulative nature of the process of expansion and contraction. In this respect, there is, as we shall see, much agreement between theorists of different schools of thought. Mr. HAWTREY's propositions on this point, largely taken over from MARSHALL and the Cambridge tradition, have found a place in the theory of a great number of writers.<sup>3</sup>

Other features of Mr. HAWTREY's theory are more questionable. His contention that the reason for the breakdown of the boom is

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<sup>1</sup> See his paper "Money and Index-Numbers" in *Journal of the Royal Statistical Society*, 1930, reprinted in *The Art of Central Banking*, pages 303-332.

<sup>2</sup> See below Ch. 3, §§ 8, 16, and Part II, Ch. 11.

<sup>3</sup> No attempt has been made to establish priorities or to trace the various lines of thought to their historical origins.

always a monetary one and that prosperity could be prolonged and depression staved off indefinitely, if the money supply were inexhaustible, would certainly be challenged by most economists.

These and other features of the purely monetary explanation of the cycle will be referred to, explicitly or implicitly, in connection with the discussion of the non-monetary theories.

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## CHAPTER 3

## THE OVER-INVESTMENT THEORIES

## § 1. GENERAL CHARACTERISTICS

In this section, it is proposed to analyse some *Maladjustments*, closely related theories of a great number of *vertical and horizontal* writers, which may be labelled generically "over-investment theories".

The central theme of all these theories is the over-development of industries which produce producers' goods or capital goods in relation to industries producing consumers' goods. They all start from the universally admitted fact that the capital-goods industries are much more severely affected by the business cycle than industries which produce for current consumption. During the upward phase of the cycle the output of producers' goods rises much more, and during the downward phase is much more curtailed, than the output of perishable consumers' goods. Durable consumers' goods, such as houses and automobiles, are in a special position approximating to that of capital goods.

According to the over-investment theorists, this phenomenon is the symptom of a serious maladjustment which develops during the upswing. The capital-goods industries, it is argued, are

relatively over-developed : the production of capital goods as compared with the production of consumer's goods is pushed farther than the underlying situation can permanently tolerate. Thus it is a real maladjustment in the structure of production that causes the breakdown of the boom, and not a mere shortage of money due to an insufficiency of bank reserves. It follows that, after the boom has once been allowed to develop, the setback cannot be staved off indefinitely by monetary measures.

The situation as it develops during the boom, according to the over-investment school, may be described as a "*vertical* disequilibrium or maladjustment" in contradistinction to a "*horizontal* disequilibrium or maladjustment" in the structure of production. The distinction between vertical and horizontal maladjustments can be formulated as follows. Supposing that by some means the aggregate money flow is kept constant, equilibrium in the structure of production will be preserved, if the allocation of the factors of production to various employments corresponds to the distribution of the money flow—*i.e.*, the monetary demand for the products of the different branches of industry. This distribution is, broadly speaking, determined by (1) the decisions of the population as to spending and saving, (2) the decisions of consumers as to the distribution of expenditure between various lines of consumption goods, and (3) the decisions of producers at every stage as to the distribution of their cost expenditure between different forms of input. If the structure of production does not correspond to the first set of decisions, we have a *vertical* maladjustment—vertical because the industries which are not harmoniously developed are related to each other in a "vertical" order, as cost and product. One may also speak of "higher" and "lower", or "earlier" and "later" stages of production—in which case "lower" and "later" mean "nearer to consumption". If the structure of production does not correspond to the second or third set of decisions, we have a *horizontal* disproportion—a disproportion between industries of the same "rank" as measured by distance from consumption.

We have seen that Mr. HAWTREY also recognises the fact that the cyclical movement is much more violent in the capital-goods industries. But in his view, this is merely the consequence of fluctuations in the flow of money (consumers' income and outlay). It is not an evil in itself. According to the over-investment theories, fluctuation in investment is the cause of the business cycle, and the forces which bring about expansion (being to a large extent of a monetary nature) have a direct effect on investment—viz. (mainly) on investment in fixed capital. Fluctuations in investment generate fluctuations in consumers' income rather than the other way round.

Thus, according to these theories, the business cycle is not a purely monetary phenomenon. But that does not preclude the possibility of money's playing a decisive rôle in bringing about the cycle and causing periodically a real maladjustment. Some members of the over-investment school consider monetary forces to be the *impelling* factor disturbing the equilibrium. Others believe that certain monetary arrangements are *conditioning* factors, which do not actively disturb the equilibrium but are the instruments through which the active forces of a non-monetary nature operate.

We can distinguish three sub-groups with a still greater variety in detail.<sup>1</sup>

*The schools of over-investment*

*theorists.* (A) Writers who believe that monetary forces operating under a particular form of credit organisation (banking system) produce the disequilibrium between the lower and higher stages of production.

This type of theory, which is frequently called the "Neo-Wicksellian" school, may perhaps be included amongst the monetary explanations of the business cycle, inasmuch as the active cause which disturbs the equilibrium is a monetary one. But the business cycle is for these writers more than a purely monetary phenomenon. Monetary forces produce a real maladjustment,

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<sup>1</sup> Naturally, other groupings are possible, but that selected seems to be the most natural and useful.

the consequence of which is the breakdown of the boom. Crisis and depression cannot be explained purely by contraction of the circulating medium, although deflation may come in as a secondary and intensifying element. Among the writers whose theories fall within this group are HAYEK, MACHLUP, MISES, ROBBINS, RÖPKE and STRIGL. WICKSELL has provided the theoretical basis for this theory, but belongs himself rather to the following group (group (B)), while ROBERTSON holds an intermediate position between group (A) and group (B).

(B) This group consists of writers whose theories do not run in terms of money. They stress factors in the sphere of production such as inventions, discoveries, the opening of new markets, etc.—that is, circumstances which provide new investment opportunities. Some of them refer to the money factor only incidentally or incline to minimise it. But it can be shown—and is indeed frequently recognised by the writers in question—that certain monetary forces are indispensable for the active factors on which they lay stress to produce the effect postulated. CASSEL, HANSEN, SPIETHOFF and WICKSELL are prominent in this group. ROBERTSON has been already mentioned. PIGOU's and SCHUMPETER's analyses go parallel for a long way with the theories of these writers.

(C) There is a third view which adds much to the force of the over-investment theory—namely, the theory that changes in the production of consumers' goods give rise, for technological reasons, to much more violent fluctuations in the production of producers' goods in general and fixed capital equipment in particular. This so-called principle of "the acceleration and magnification of derived demand" has been elaborated by AFTALION, BICKERDIKE, CARVER and PIGOU. In recent years, J. M. CLARK and R. G. HARROD have laid great stress upon it in their explanation of the business cycle. MITCHELL, ROBERTSON and SPIETHOFF mention it as a factor which intensifies the cyclical movement. The principle can also be used, as we shall see, in support of a special type of the under-consumption theory of the business cycle.

## A. The Monetary Over-investment Theories

## § 2. GENERAL CHARACTERISTICS AND THEORETICAL FOUNDATION

The theories of the following writers will now be examined : F. A. HAYEK,<sup>1</sup> F. MACHLUP,<sup>2</sup> *Banking system and* L. MISES,<sup>3</sup> L. ROBBINS,<sup>4</sup> W. RÖPKE<sup>5</sup> and *money supply.* R. STRIGL.<sup>6</sup> The explanation given by these writers of the upswing and of the down-turn (crisis) is fundamentally the same. Such differences as exist are mainly in respect of amplifications in the later publications. Serious conflicts of opinion are to be found, on the other hand, in respect of the description and explanation of the downswing and the up-turn (revival). Professor RÖPKE, in particular, dissents strongly from the opinion of the other writers named in the interpretation of the later phases of such prolonged depressions as that of 1929-1936. The writers of this group have this in common with the purely monetary theory of Mr. HAWTREY, that they assume an elastic money supply. They argue that the circulating medium consists under modern conditions primarily of bank money (deposits), and that the banking system regulates the quantity of money by changing the discount rate and by conducting open-market operations. It has long been recognised that there is a complicated functional relationship between the interest rate, changes in the quantity of money and the price level.

<sup>1</sup> *Monetary Theory and the Trade Cycle*, London, 1933 (translated from the German). *Prices and Production*, London, 1931, enlarged edition, 1934. See also his latest exposition, "Preiserwartungen, monetäre Schwankungen und Fehlinvestitionen" in *Nationalökonomisk Tidskrift*, 1935 (translated into French : "Prévision de prix, perturbations monétaires et faux investissements" in *Revue des Sciences économiques*, 1936).

<sup>2</sup> *Börsenkredit, Industriekredit und Kapitalbildung*, Vienna, 1931.

<sup>3</sup> *The Theory of Money and Credit*, London, 1934 (translated from the German). *Geldwertstabilisierung und Konjunkturpolitik*, Jena, 1928.

<sup>4</sup> *The Great Depression*, London, 1934.

<sup>5</sup> *Crises and Cycles*, London, 1936 (translated from the German). "Trends in German Business Cycle Policy", *Economic Journal*, September 1933.

<sup>6</sup> *Kapital und Produktion*, Vienna, 1934.

These relationships have been expounded systematically by KNUT WICKSELL ; his theory, outlined below, is the basis of the explanation of the business cycle which follows.<sup>1</sup> It should be added that, in what follows, we shall leave international complications for the moment out of account and disregard the fact that a change in the interest rate in one country will influence the flow of credit from and to other countries. These complications can easily be introduced into the picture later. For the present, we presuppose a closed economy.

WICKSELL distinguishes between the "money *Natural rate rate*" or actual "market rate of interest" as *and money rate* influenced by the policy of the banks (and other *of interest*. monetary factors) on the one hand and the "natural rate of interest" on the other. The latter is defined by WICKSELL as "that rate at which the demand for loan capital just equals the supply of savings".<sup>2</sup> If the banks lower the market rate below this natural or, as it should perhaps more correctly be called, equilibrium rate, the demand for credit will rise and exceed the available amount of savings, and the supply of credit must be supplemented by bank credit created *ad hoc*—that is, by inflation. If, on the other hand, the rate is raised above the equilibrium level, the demand for credit will fall, some portion of the total saving will not be used, and credit will be liquidated

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<sup>1</sup> *Interest and Prices*, London, 1936, translated from the German, *Geldzins und Güterpreise*, Jena, 1898 ; *Lectures on Political Economy*, London, 1934, Vol. II, translated from the Swedish ; "The Influence of the Rate of Interest on Prices", *Economic Journal*, June 1907. On the evolution of Wicksell's theory, see the excellent introduction by Professor B. Ohlin to *Interest and Prices*. Compare also the elaboration of Wicksell's theory by recent Swedish writers as summarised in Professor G. Myrdal's paper "Der Gleichgewichtsbegriff als Instrument der geld-theoretischen Analyse" in *Beiträge zur Geldtheorie*, ed. by Hayek, 1933, and E. Lundberg, *Studies in the Theory of Economic Expansion*, London, 1937. Some aspects of the theory and their history have been discussed at great length by A. W. Marget, *The Theory of Prices*, Vol. I, Ch. VII-X. In Vol. II, which has not yet appeared, the discussion will be continued.

<sup>2</sup> *Vorlesungen über Nationalökonomie*, Vol. II, page 220. It is possible to trace in Wicksell's writings an alternative definition of the natural rate—viz., as that rate which would prevail in a barter economy where loans are made *in natura*. This conception presents, however, great theoretical difficulties. We shall therefore disregard it.

or deflated.<sup>1</sup> WICKSELL goes on to argue that, if the market rate is below the natural rate, prices will rise : if it is above, prices will tend to fall.

There is, however, a fallacy in this last position, as was pointed out for the first time by the *Two meanings of the concept* Swedish economist DAVIDSON.<sup>2</sup> In a progressive "natural rate" economy, where the volume of production and transactions rises, the flow of money must be increased in order to keep the price level stable. Therefore, the rate of interest must be kept at a level low enough to induce a net inflow of money into circulation. The rate which stabilises the price level is below the rate "at which the demand for loan capital just equals the supply of savings".

Making allowance for this discrepancy, we may formulate the theorem as follows. If the banks lower the interest rate, *ceteris paribus* the flow of money incomes will expand or, if it was shrinking,

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<sup>1</sup> Inasmuch as money loaned out is supposed to be used for productive purposes (that is to say, is invested), we can also say that the equilibrium rate is that rate at which savings—voluntary savings as distinct from "forced savings"—become equal to investment. If the market rate is below the equilibrium rate, investments exceed savings : if it is above, investments fall short of savings. Saving, in this context, has not to be interpreted according to the unusual definition adopted by Mr. Keynes in the *Treatise on Money*, and later discarded by him in the *General Theory of Employment, Interest and Money*. Mr. Keynes now employs a definition of saving according to which aggregate saving is only another aspect of aggregate investment, both being defined as the difference between the money value of output and expenditure on consumption. This is not the sense, however, in which saving is used by the authors now under consideration. For them, additions to the value of current output do not *immediately* constitute disposable income ; and it is thus open to them to regard saving as something different from investment. When they say that investment exceeds saving, they mean that there is in progress an inflationary increase in the money value of output which is not immediately translated into increased incomes. When they say that investment falls short of current saving, they mean that there is in progress a process of hoarding, a deflationary decrease in the money value of output. Which terminology is the more convenient—whether it is better to regard saving as necessarily equal to investment or not—is at present still an open question which will be discussed at some length in Chapter 8, below:

<sup>2</sup> Cf. Brinley Thomas, "The Monetary Doctrines of Professor Davidson" in *Economic Journal*, Vol. 45, 1935, pages 36 *et seq.*, and F. A. Hayek, *Monetary Theory and the Trade Cycle*, *passim*.

the process of contraction will be stopped or slowed down : prices will rise or, if they were falling, the fall will be arrested or mitigated. If the banks raise the interest rate, *ceteris paribus* the flow of money incomes will contract or, if it was expanding, the expansion will be stopped or slowed down : prices will fall or, if they were rising, the rise will be arrested or mitigated. Under given conditions, there is one rate which keeps the price level constant and another which keeps the flow of money incomes constant. The two coincide only in a stationary economy. In a progressive economy, the rate which stabilises the price level is below the rate which keeps the flow of money incomes constant.

Which of these two rates is called the "natural" or "equilibrium rate" will depend on which is thought the likelier to maintain the equilibrium of the economic system. We shall see that those writers of the group under review, whose analysis takes account of the difference, reserve the adjective "natural" for the rate which keeps the flow of money incomes constant. But for the moment we shall ignore this distinction, which the writers in question themselves are by no means consistent in respecting.<sup>1</sup>

### § 3. THE UPSWING

<i>Interest rates and prices.</i>	According to the theory with which we are dealing, the boom is brought about by a discrepancy between the natural and the money rate of interest. How this discrepancy is produced, and whether there is any reason why it should recur again and again in a more or less regular fashion, will be discussed later. If the money rate stands below the equilibrium rate, a credit expansion will ensue. As soon as prices begin to rise, the process tends to become cumulative for the reason that there is a twofold causal connection between interest rates and the
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<sup>1</sup> Independently from Wicksell, Mr. Hawtrey introduced the notion of the "natural rate" (which he distinguished from the "profit rate") in his first book *Good and Bad Trade* (London, 1913). But, since he did not use this concept in any of his later writings, we have made no reference to it in the summary of his theory. The concept of a "natural rate" (and even the term) can be found in earlier English economic writings.



price level. A low interest level tends to raise prices and a high level to depress them ; but, on the other hand, rising prices tend to raise interest rates and falling prices to reduce them. If prices rise and people expect them to continue to rise, they become more eager to borrow and the demand for credit becomes stronger. Falling prices have the contrary effect. Rising prices are equivalent to a premium for borrowers, falling prices are a tax on borrowers. Professor IRVING FISHER distinguishes between the "nominal or money rate of interest" and the "real rate of interest".<sup>1</sup> The first is the rate as we find it in the market : the second is the money rate corrected for changes in the value of money in terms of goods and services. Thus, if prices rise by 3% during the year, a nominal rate of 5% is equivalent to a real rate of (approximately) 2%, because the purchasing power of the capital sum falls by 3%. If prices rise by (say) 10% a year, a nominal rate of less than 10% becomes equivalent to a negative real rate, because the creditor loses, in terms of real purchasing power, more on the capital than he receives as interest. If prices fall by (say) 10% annually, a money rate of 5% becomes equivalent to a real rate of about 15%.

Mr. HAWTREY proposes the term "profit rate" for true profits of business, which he describes as being the ratio of labour saved per annum by the capital actually in use to labour expended on first cost, corrected for price changes.<sup>2</sup>

The most convenient way of approach to the understanding of these rather complicated inter-relationships is to conceive of the situation in terms of the supply of, and demand for, credit. The supply is furnished by the savings of individuals and corporations, supplemented by inflationary bank credits. The ability of the banks to create credit makes the total supply more elastic than it would otherwise

<sup>1</sup> See the latest version of his theory in *The Theory of Interest*, New York, 1930, Chapter II. The first version was contained in his *Appreciation and Interest* (1896). Cf. also Adarkar, "Fisher's Real Rate Doctrine" in *Economic Journal*, Vol. 44, 1934, page 337, and Professor D. H. Robertson, "Industrial Fluctuations and the Natural Rate of Interest", *ibid.*, pages 650 *et seq.*

<sup>2</sup> As Professor Hansen has pointed out, many of these concepts must be interpreted as referring to "expected" rather than to "contemporary"

be. A considerable increase in the demand will be met without much rise in the interest rate, though the supply of voluntary saving may have increased only a little or not at all. The demand for credit is a very complex and volatile phenomenon. We shall see later on, in connection with the analysis of other theories, that it is exposed to sudden influences from various sides and is subject to rapid changes. To elucidate the theories here under review it is sufficient to assume that, at any given moment of time, there is a negatively inclined demand schedule. The lower in such case the price of credit—*i.e.*, the interest rate—the larger the amount of credit demanded.

We start from a situation where the banks maintain a level of interest rates at which the demand for, and supply of, credit exceeds the supply of savings. A credit expansion ensues, prices rise, and the rise in prices raises profits. The demand for credit rises: at each rate of interest, more is demanded than before. But the monetary expansion does not expand savings to the same extent, and the equilibrium rate of interest rises. Consequently, if the banks persist in maintaining the same rate of interest, the gap between the equilibrium rate and the market rate will be even wider than before, and the amount of credit expansion required even greater. Prices rise higher still, profits are raised, and the vicious spiral of inflation continues. After the movement has gathered momentum, it can only be stopped by a considerable rise in the rate of interest being enforced by the banks.

The process need not be discussed in greater detail, because so far the monetary over-investment theory runs parallel with the purely monetary theory.<sup>1</sup> The only difference is a difference of terminology—namely, the introduction of the terms “natural or

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magnitude. It is the “expected” profit or yield from capital investment which must be set against the money rate of interest. Fairness to the older writers demands this interpretation, even if they frequently failed to emphasise “expectations” to the extent which has since become fashionable.

<sup>1</sup> It should be remembered that the present theory has been developed independently of Mr. Hawtrey's. Whether and to what extent they have historically a common origin in the Marshallian tradition and earlier English and Continental writers will not be discussed here.

equilibrium rate of interest " for a concept which is equally implicit in Mr. HAWTREY's analysis.

*The  
capitalistic  
structure  
of production.*

So much for the monetary aspect of the upswing. But, according to the theory under review, it has its complement in a distortion in the structure of production, a maldistribution of economic resources. This "real" aspect it is now proposed to consider.

The rate of interest has not only the function of regulating the quantity of money. Like every other price, it has, in an individualistic economy, the more fundamental function of serving as a guide to the allocation of the factors of production to the different branches in the production process. It is the vertical structure, more specifically, which is governed by the rate of interest. In order to explain this part of the price mechanism, it is necessary to go somewhat deeper into the theory of capitalistic production.

At any given moment, the available means of production are in some way apportioned between the various stages of production. Some of them are at work in the industries which produce consumers' goods; others in the industries just before the last stage; others are applied to produce half-finished goods, raw materials, tools and machinery.

The apportionment of the factors of production devoted to the production of consumers' goods and to the earlier stages of production respectively can, of course, be modified and is being modified continuously. Economic progress has to a large extent been conditioned by the fact that an ever-increasing proportion of the available productive resources has been devoted to earlier stages of production. New stages have been added or interpolated, with the result that the vertical structure of production has been elongated. In other words, the methods of production have become more indirect, more "roundabout" and more "capitalistic", in the sense that a greater amount of capital, intermediate goods such as machinery and raw materials and half-finished products, is used per unit of output of consumable goods.<sup>1</sup> The

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<sup>1</sup> Intermediate goods and consumers' goods are measured in value units. Since we are concerned with a proportion of values, we are not bothered by the objection that there can be no common measure for

ultimate aim of the accumulation of capital is naturally an increase in the output of consumers' goods. But the percentage increase in capital stock piled up behind the consumption industries is greater than the percentage increase in the rate of flow of consumers' goods.

The force which determines the lengthening of the process of production is, broadly speaking, the rate of saving. The signals for the entrepreneurs to elongate the process are the availability of new capital and the lowness of the rate of interest.

If a part of current income is being saved—*i.e.*,  
*Saving and* if not all income is devoted to buying consumers'  
*interest.* goods—the demand for consumers' goods falls off  
 and factors of production are made available.<sup>1</sup> If  
 the money saved is not withdrawn from circulation, but is offered  
 in some way in the capital market, the rate of interest will fall  
 and this will induce entrepreneurs to make new investments.  
 There are always opportunities for investment which cannot be  
 undertaken for want of capital. Labour-saving machinery can  
 be installed (which involves the creation of a new stage in the  
 process of production), railways can be electrified and in a hundred  
 other ways the process of production can profitably be lengthened  
 —if only the rate of interest is low enough and the necessary  
 amount of capital available. It is the function of the rate of interest  
 to select among the great number of existing opportunities for  
 investment those extensions of the production process which can  
 be undertaken with the existing supply of capital (savings). The  
 rate of interest distinguishes those of the new roundabout methods  
 of production which are permissible from those which are not.

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valuations at different time points. The problem of the "time-dimension" of capital has given rise to endless disputes, especially in recent years. We shall, however, refrain from going more closely into the matter, since the theories at present under discussion can be analysed without a final decision on this point. (*Cf.* Nicholas Kaldor : " Annual Survey of Economic Theory : The Recent Controversy on the Theory of Capital " in *Econometrica*, Vol. V, 1937, page 201 *et seq.*, the reply by F. H. Knight and rejoinder by N. Kaldor, *loc. cit.*, Vol. VI, 1938. See also Hugh Gaitskell : " Notes on the Period of Production ", *Zeitschrift für Nationalökonomie*, Vol. 7, 1936, and Vol. 9, 1938.)

<sup>1</sup> *Cf.*, *e.g.*, Bresciani-Turroni : " The Theory of Saving ", in *Economica* (New Series), Vol. 3, 1936, pages 1 *et seq.*, and 162 *et seq.*

If a certain plan of investment, which from the technological point of view seems to be productive and useful, cannot be realised for the sole reason that the expected yield would not justify the investment at the existing rate of interest—*i.e.*, because the profit rate is lower than the prevailing rate of interest—that by no means proves the imperfection of our present pricing system, but simply shows that there exist other opportunities for improving the productive process which hold out a higher rate of return and should rationally, therefore, be undertaken first.

If the rate of interest falls because of increased savings, the demand for capital can be satisfied to a greater extent and the equilibrium point moves down along the curve of demand for capital. Investments which were extra-marginal under the higher rate now become permissible. Factors of production are shifted from the lower to the higher stages of production. The production process is lengthened and eventually the output of consumers' goods per unit of input (in terms of "original factors" of production) is raised.<sup>1</sup>

From the point of view of the entrepreneur who "*Artificial*" wants to embark on new schemes of investment, the *lowering of the interest rate* of interest is due to capital's having been made more plentiful, not by an increase in voluntary saving, but by an expansion of bank credit. Such an artificial cheapening of capital will also lead to a lengthening of the process

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<sup>1</sup> It has been questioned whether this process of saving and investment runs smoothly. A great number of writers believe that the process of saving is likely to produce serious disturbances (a) because saving produces depression in the consumption industries which then spreads to the higher stages, (b) because money which is saved frequently disappears on the way and is not invested (deflation), (c) because increased investments eventually bring about an increase in the production of consumers' goods, which cannot be sold at the prevailing prices unless the flow of money is increased. But it is not with these alleged frictions and disturbances that we are here concerned. They will have to be discussed at a later stage of our enquiry. The theorists now under review believe that ordinarily the process of saving and investment runs smoothly. According to them, troubles arise only if voluntary saving is supplemented from "inflationary sources", that is, by new bank credit or by expenditure from money hoards (which is equivalent to by a rise in the velocity of circulation of money).

of production. If we start from an equilibrium position of full employment with no excess capacity—we shall see later that the argument can also be adapted to apply to a situation with unemployment and unused plant—means of production will be drawn away from the consumption-goods industries. These industries will have to contract and the higher stages of production will expand.

This comes about in the following way. Entrepreneurs who want to invest are provided with purchasing power by the banks and compete for capital goods and labour. Prices will rise or be prevented from falling—this last case we shall discuss in detail later—and consumers' goods industries (the demand for the product of which has not risen, or not risen so much as the demand for capital goods, which is swollen by the newly created purchasing power) will be unable to retain at the enhanced prices all the factors of production which they used to employ. They will be compelled, therefore, to release means of production for use in the higher stages of production—that is, for the production of additional capital goods.<sup>1</sup>

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<sup>1</sup> The concept "forced saving" has a long history (*cf.* F. A. Hayek, "A Note on the Development of the Doctrine of Forced Saving" in *Quarterly Journal of Economics*, Vol. 47, page 123). In addition to the writers of the present group, Professor Schumpeter has given it a prominent place in his account of the upward phase of the cycle. (See his *Theory of Economic Development*, English translation from the last German edition, 1934. First German edition, 1911.) Unlike the monetary over-investment theorists, however, he does not use the alleged peculiarities of forced saving to explain the crisis. This point will be taken up later (*cf.* Ch. 5, § 3). Recently the doctrine of forced saving has been attacked by Mr. Keynes (*The General Theory of Employment, Interest and Money*, pages 79-81, 183). But, as Professor Robertson has pointed out (*cf.* "Some Notes on Mr. Keynes' General Theory of Employment" in *Quarterly Journal of Economics*, Vol. 51, 1936, page 178), Mr. Keynes' objections are purely verbal. He banishes the word, but is forced to recognise the thing which the word denotes, though in another dress, when he says that, under the pressure of investment which is imperfectly foreseen, there may occur a "temporary reduction of the marginal propensity to consume" (*loc. cit.*, pages 123 and 124).

Obviously, the necessary condition is that the *Credit expansion and passu* demand for consumers' goods does not rise *pari* with the creation of credit and the rise in "forced demand for capital goods. Either there will be a lag in the rise of aggregate incomes, or—what is probably the same thing from another angle—the increment of income will not at once be available (owing to discontinuities in the receipt of it) for expenditure purposes. Prices will thus rise quicker than disposable income, and consumption will be curtailed. In addition, the rigidity of certain contract incomes such as rents, pensions, salaries, etc., may have the effect of modifying the distribution of income in favour of classes who are more disposed to save and have greater incentives to do so, with the result that consumption will tend to be still further reduced. People are to some extent forced, and to some extent induced, to save more; and this "forced saving" has the same result as is usually brought about by voluntary saving—viz., a restriction of consumption and the release of productive resources for the production of additional capital goods. In other words, the real capital which is needed for the increased investment is extorted from the consuming public by means of rising prices.

Treatment of these theories is complicated by the fact that there is as yet no agreement as to the exact use of the expression "forced saving". It has been used to indicate the extra saving created by the transfer of resources and incomes from creditor to debtor, from rentier to State, from wage-earner (at least temporarily) to employer, as the result of inflation. Professor STRIGL has objected to this theory of forced saving<sup>1</sup> that, if those with relatively fixed incomes get less and are obliged to restrict consumption, others expand their incomes to a corresponding amount and, unless they refrain voluntarily from expanding consumption to the required extent, there cannot be a net increase in capital formation. In other words, there is no forced saving, but only ordinary, voluntary saving.

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<sup>1</sup> *Kapital und Produktion*, Vienna, 1934, page 195, and "Die Produktion unter dem Einfluss einer Kreditexpansion", in *Schriften des Vereins für Sozialpolitik*, Vol. 173, 1928.

Apart, however, from the increase of saving as a result of what Professor PIGOU styles a "doctoring of past contracts", there is a more direct channel whereby additional bank credits may increase investment. This is the process which Professor ROBERTSON discusses at length in *Banking Policy and the Price Level* under the head of "Automatic Stinting". Either dishoarding or the expenditure of newly created money, he says, "brings on to the market an additional daily stream of money which competes with the main daily stream of money for the daily stream of marketable goods, secures a part of the latter for those from whom the additional stream of money flows, and thus deprives the residue of the public of consumption which they would otherwise have enjoyed".<sup>1</sup> As PIGOU argues in the particular case of the expansion of bank credits: "What in substance has happened is that the bankers have transferred to business-men purchasing power and, through purchasing power, real stuff in the form of wage goods and so on, formerly belonging to other people. They have done this by giving new money titles to business-men while leaving the money titles in other people's hands untouched in exactly the same way as they would have done had they taken money titles from other people and handed them to business-men."<sup>2</sup>

Neither Professor PIGOU nor Professor ROBERTSON seems to have in mind a reduction in *total* consumption, but only a re-distribution of consumption in favour of wage-earners, an augmentation of the real-wages bill, which, according to Professor PIGOU, brings with it an augmentation of capital. But this is the same type of mechanism envisaged by Professor HAYEK and Professor MISES as the instrument by which investment is financed in excess of voluntary saving in the case where an increase in capital involves a diminution of the flow of goods available for consumption. In the latter case, however, it is implied that the incomes created by the additional investment do not immediately become available to be spent or saved.

Professor Francesco VITO uses the expression "forced savings" for what is usually called "corporate saving". If a business firm or company fails to distribute its entire profits to the shareholders,

<sup>1</sup> *Banking Policy and the Price Level*, 1932 ed., page 48.

<sup>2</sup> *Industrial Fluctuations*, 1929, page 141.



this may mean that the latter have been "forced" to save (against their will) by the directors of the corporation. Professor VITO believes that this type of forced saving is likely to cause the same troubles as the type envisaged by Professor HAYEK.<sup>1</sup>

#### § 4. THE DOWN-TURN (CRISIS)

Why must this process of monetary expansion and heavy investment always end in a collapse? Why does it not go on indefinitely or tail off into a more stable situation?

According to the over-investment theory, this is *Abandonment of over-capitalistic processes.* impossible, because, by the artificial lowering of the interest rate, the economy is lured into long roundabout methods of production which cannot be maintained permanently. The structure of production becomes, so to speak, top-heavy. Forces are set up which tend to restore the old arrangement. For some time, increasing advances by the banks enable entrepreneurs to carry on construction by the new roundabout methods. But sooner or later—and the later it happens the worse the result—it becomes clear that the newly initiated extensions of the structure of production cannot be completed, and the work on the new but incompleted roundabout processes must be discontinued. The investment boom collapses and a large part of the invested capital is lost.

Before discussing in detail how this comes about and what the external symptoms are, it will be useful to make the broad lines of the argument clearer by comparison with a centralised communistic economy.

The Russian Five-year Plan was a supreme effort to increase the "roundaboutness" of production and thereby the future production of consumers' goods. Instead of producing consumers' goods with the existing rather primitive methods, they curtailed production for immediate consumption to the indispensable minimum. Instead of food, shoes, clothes, houses, etc., they

<sup>1</sup> See F. VITO: "Il Risparmio forzato e la teoria di cicli economici" in *Revista internazionale di scienze sociali*, 1934, and "Die Bedeutung des Zwang-sparens für die Konjunkturtheorie" in *Beiträge zur Konjunkturlehre*, 1936.

produced power-plants and steel works : they sought to improve the transportation system : in a word, they built up a productive apparatus which could turn out consumption goods only after a considerable period of time.

But suppose it had become impossible to carry through this ambitious plan. Suppose the Government had come to the conclusion half-way that the population could not stand the enormous strain and had decided to change the policy. In such a case, they would have been forced to give up the newly started round-about methods of production and produce consumers' goods as quickly as possible. They would have had to interrupt the construction of power-plants, steel works and tractor factories and try instead to produce as quickly as possible simple implements and tools to increase the output of food and shoes and houses. That would have involved an enormous loss of capital, sunk in the abandoned construction works.<sup>1</sup>

Exactly the same thing happens, according to the monetary over-investment theory, in our individualistic exchange economy at the turning-point from prosperity to depression during the ordinary business cycle. The only difference is this : what in a communistic society is done upon a decision of the supreme economic council is in our individualistic economy brought about as the net effect of the independent actions of individuals and carried out by the price and interest mechanism.

It is not so easy to trace this process in detail, step by step, as it is to convey the general meaning of the argument : and, at this crucial point, the reasoning of our authors is not always altogether clear and consistent. It should be kept in mind that we are still concerned with what happens at the end of the boom and with the nature of the maladjustment which necessarily emerges and leads to the collapse. What happens after the turn will be discussed later. We shall see that, once the depression has started,

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<sup>1</sup> Since the appearance of the first edition of this book, a very lucid analysis, also in "real" terms but much more elaborate than the above, has come to the author's notice : *Autour de la crise américaine de 1907, ou Capitaux-réels et Capitaux-apparents*, by Marcel Labordère (enlarged reprint from the *Revue de Paris* of February 1st, 1908), Paris, 1908. This important study has been entirely overlooked by the whole literature on the subject.

the whole economic scene is completely changed and quite different arguments apply.

The proximate cause for the breakdown of the boom is almost invariably the inability or unwillingness of the banking system to continue the expansion.

*Shortage of investible funds.*

Furthermore, it can be shown that a mere stoppage of expansion without actual contraction is very likely to lead to serious trouble. The process of expansion and investment involves the banking system in heavy commitments for the future, not in the legal but in the economic sense. The newly started roundabout methods of production can be completed only if a flow of capital is available over a considerable period. If this flow is not forthcoming, the completion of the new schemes is impossible. This must not be interpreted in too narrow a sense. What is meant is not merely that the construction of an indivisible piece of investment, a railway line or a power-plant or a new Cunarder, may have to be interrupted.<sup>1</sup> A much more important case is where a higher stage in the structure of production has been so much developed that it can work with full capacity only if the lower stages are adding to their equipment. If the steel industry, for example, has been developed to satisfy the needs of a rapid expansion in the building or automobile industry, it may suffer a contraction as soon as the building or automobile industry—without actually contracting—stops expanding and no longer adds to its equipment. This proposition will be discussed in greater detail in connection with the so-called “acceleration principle”. It explains or helps to explain why the transition from expansion to a stationary state is so difficult.

As has already been said, the fact that banks are forced to stop expansion for monetary reasons is the proximate cause of the boom's coming to an end. Shortage of capital causes the collapse; but the term “shortage of capital” is provisional and has to be used with great care. In the first instance, it may be interpreted in the monetary sense as equivalent to a shortage of investible funds.

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<sup>1</sup> Such an over-narrow interpretation of the “Austrian” theory seems to be implied in Professor D. H. Robertson's article: “Industrial Fluctuations and the Natural Rate of Interest” in *Economic Journal*, Vol. 44, 1934, page 653.

The whole over-investment school, however, deny that the difficulty is a purely monetary one. They deny that monetary measures could avert the crisis, and contend that they could only postpone it. If all legal and customary limitations were removed and the necessary funds provided, the monetary expansion could go on, but prices would inevitably rise. There would be no end to this rise of prices, which would proceed with increasing rapidity like the German inflation in 1921-1923; and, if the credit expansion were not stopped, it would be brought to an end by a complete collapse of the monetary system—that is to say, the public would eventually abandon and repudiate the rapidly depreciating currency, as the German public started to do with the German Mark in 1923.

Great pains have been taken to explain this *Hayek's* process in terms of relative prices and of supply *theory* and demand for particular types of goods. To *of capital* Professor HAYEK we owe the most elaborate *shortage*. analysis. It runs as follows :

The whole stream of money or flow of purchasing power—that is, the demand for goods in terms of money per unit of time—is at any given point of time divided between producers' goods and consumers' goods. Since the productive process is split up into numerous successive stages—or, in other words, since the original factors of production (whatever that may mean) have to undergo numerous successive transformations before they are ready for final consumption—the money volume of transactions in producers' goods per unit of time is a multiple of transactions in consumers' goods. Much more money is spent per unit of time on producers' goods in all stages than on consumers' goods. If a part of income is saved and invested, *ceteris paribus*<sup>1</sup> the proportion between the demand for consumers' goods and the demand for producers' goods is modified in favour of the latter; and it

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<sup>1</sup> This qualification is necessary, because there are other facts which influence the proportion mentioned in the text. If, for example, two or more successive stages of production are merged and run by a single firm instead of by two independent firms, the transfer of the intermediate goods from the former to the latter will from that time on be accomplished without the help of money. The amount of money required in the business sphere is reduced by such an act of integration.

must be permanently modified because, by the act of saving, the stock of capital, as well as the volume of transactions in capital goods, has been permanently increased.

An analogous change in the proportion between money spent for consumers' and producers' goods may be induced by injections of bank credits for production purposes. But in that case, in contradistinction to the case of voluntary saving, there is a strong probability that individuals will tend to restore the old proportion. "Now, the sacrifice is not voluntary and is not made by those who will reap the benefit from the new investments. It is made by consumers in general who, because of the increased competition from the entrepreneurs who have received the additional money, are forced to forgo part of what they used to consume . . . There can be no doubt that, *if* their money receipts should rise again, they would immediately attempt to expand consumption to the usual proportion."<sup>1</sup> And receipts will rise sooner or later, for the new money is spent partly to hire labourers, partly to buy capital goods of all sorts; and in both cases the money, partly at once, partly after a while, becomes additional income in the hands of the owners of the factors of production.

There is another factor which tends to swell the *Faulty bookkeeping practices.* demand for consumers' goods. Bookkeeping is more or less based on the assumption of a constant value of money. Periods of major inflations have shown that this tradition is very deeply rooted and that long and disagreeable experiences are necessary to change the habit. One of the consequences is that durable means of production—such as machines and factory buildings—figure in cost accounts at the actual cost of acquisition, and are written off on that basis. If prices rise, this procedure is illegitimate. The enhanced replacement cost should be substituted for the original cost of acquisition. This, however, is not done, or is done only to an insufficient extent and only after prices have risen considerably. The consequence is that too little is written off, paper profits appear,<sup>2</sup> and the entrepreneur is tempted to increase his

<sup>1</sup> Hayek : *Prices and Production*, 2nd ed., London, 1934, page 57.

<sup>2</sup> These paper profits are also likely to add to the cumulative force of the upswing, because they stimulate borrowers and lenders to borrow

consumption. Capital in such case is treated as income.<sup>1</sup> In other words, consumption exceeds current production.

If the demand for consumers' goods rises relatively to the demand for producers' goods, consumers' goods industries become relatively profitable, and factors of production are enticed away from the higher stages of production and employed in the lower stages. The price of labour (wages) and of other mobile means of production, which can be used in various stages and can be transferred from the higher to the lower stages, rises. This involves a rise in money cost, which affects both lower and higher stages of production. But, while in the lower stages demand has risen, this is not true of the higher stages. Hence losses and a curtailment of production in the higher stages. The collapse of the boom has begun.

It sounds perhaps paradoxical that a general increase in demand for consumers' goods should have an adverse influence on the production of capital goods in general, which derive their economic value from the consumers' goods which they help to produce. The paradox has puzzled many writers, but it is not difficult to explain.<sup>2</sup> It should be borne in mind in the first place that

and lend more. They foster the optimistic spirit prevailing during the upswing, and so the credit expansion is likely to be accelerated. This phenomenon has its exact counterpart during the downswing of the cycle. See the excellent analysis of this phenomenon by E. Schiff, *Kapitalbildung und Kapitalaufzehrung im Konjunkturverlauf* (1933), esp. Ch. IV, pages 113-134 ; also Fr. Schmidt, *Die Industriekonjunktur—ein Rechenfehler* (1927), who has tried to build a complete theory of the cycle on this factor.

<sup>1</sup> In so far as entrepreneurs repay loans to the banks, they find themselves in possession of a real surplus, since their obligations have remained unchanged, while their receipts, etc., have risen owing to the rise in prices. This surplus may, and probably will, to a certain extent be utilised for increased consumption. Professor Robertson has drawn attention to this consideration : see his *Banking Policy and the Price Level*, 2nd ed., London, 1932, page 73. A further factor which operates in the direction of increasing demand for consumers' goods is the fact that, with rising prices, the consuming public is likely to disoard and "to hurry on with the purchase of goods (such as clothes and motor-cars) of which the exact moment of purchase can be varied within pretty wide limits" (Robertson, *op. cit.*, page 75).

<sup>2</sup> A. H. Hansen and H. Tout, in "Investment and Saving in Business Cycle Theory," *Econometrica*, April 1933, have pointed out the underlying assumptions.

the proposition holds good only if all factors of production are reasonably well employed or if at least some of the factors attracted to consumers' goods trades would otherwise have been employed elsewhere. In other words, under full employment, the production of consumers' good or that of producers' goods are alternatives.<sup>1 2</sup> At the end of the boom, the condition of reasonably full employment can as a rule be assumed to be true. Secondly, it is assumed that the demand for consumers' goods rises *relatively* to the demand for producers' goods. This second assumption excludes the possibility of a compensatory expansion of credit, since, if credit for the purpose of acquiring producers' goods could be expanded *pari passu* with the increased demand for consumers' goods, it would no longer be true that the proportion between demand for consumers' goods and producers' goods has changed.<sup>3</sup> The change involves a rise in interest rates; for prosperity in consumers' goods industries holds out good prospects of profits in the higher stages of production. Producers in the higher stages of production will be eager to continue lengthening the productive structure and will try to raise the necessary funds by borrowing from the banks. Demand for credit rises; but supply is unchanged, or not sufficiently changed—for it is assumed that credit ceases to expand, or does not expand sufficiently. This entails a rise in interest rates; and such a rise, as Professor HAYEK has shown, falls more heavily on production costs in the higher than in the lower stages of production. The situation is now, therefore, that money cost has

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<sup>1</sup> If competition in the labour market and the mobility of labour are imperfect, the condition of full employment can, of course, be relaxed.

<sup>2</sup> The fact that the production of consumers' goods can be expanded only at the expense of a reduction in the production of producers' goods and *vice versa* does not, of course, hold if there are idle factors of production available. Furthermore, it does not preclude the possibility that, besides this physical connection between the production of the two categories of goods, there may be connections of another nature—e.g., an increase in the production of consumers' goods may tend to stimulate the production of producers' goods, as postulated by the "acceleration principle" (see below, § 17 *et seq.* of this chapter), or there may be a causal connection in the opposite direction as postulated by the so-called "multiplier" (see below, *passim*).

<sup>3</sup> The proposition therefore does not apply during depression when there are unemployment, unused plant in almost all branches of industry, and a plentiful supply of credit.

risen, but demand has not risen (or not sufficiently risen), because the necessary funds are no longer forthcoming.

This is the exact and full interpretation of what is loosely called a "shortage of capital"; and it is a shortage of capital in this well-defined sense that is supposed to be the real cause of the breakdown. "Shortage of capital" in this sense is equivalent to under-saving and over-consumption. If people could be induced to save more—that is, to spend a smaller part of their income on consumers' goods and devote a larger part (through the intermediary of the capital market) to the purchase of capital goods—the flow of money and the structure of production would be brought into harmony and the breakdown avoided.

If this cannot be achieved—and the chances that *The fruits of* it will be achieved are almost nil—the new extensions to the structure of production are doomed *the boom lost* to collapse. With some slight exceptions which are *in the crisis.* introduced as after-thoughts and treated as theoretical curiosities of no practical importance, the authors of the monetary over-investment school conclude that every credit expansion must lead to over-investment and to a breakdown. It is asserted over and over again with great emphasis that it is impossible to bring about a lasting increase in the capital stock of society as a whole by means of forced saving and that no permanent extension of the structure of production can be accomplished with the help of an inflationary credit expansion. What is thus built up during the upswing will inevitably be destroyed in the breakdown.<sup>1</sup>

In the specific case of the American boom of 1925-1929, the authors are emphatic that the same thing applies to an expansion which does not lead to a rise in prices, but is just enough to prevent a fall in prices that would otherwise have taken place because of

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<sup>1</sup> The durable means of production constructed during the upswing outlast, of course, the boom. But the contention is that they are lost economically. They are not used at all or are used in such a way that their marginal product does not cover the cost of reproduction. It should, however, be noted that important qualifications are called for in respect of permanent goods or instruments where the cost of maintenance is negligible compared with production cost.

Compare H. S. Ellis, *German Monetary Theory 1905-1933* (1934), pages 425-431, on other views on "The 'Productivity' of Bank Credit".



a continuous increase in the volume of production. For reasons which will be expounded in the subsequent pages, it seems, however, that the undertaking to prove this latter point rigorously has not been made good.

In his *Prices and Production*,<sup>1</sup> Professor HAYEK Neisser's argues that, even where the extension of the criticism. structure of production which entrepreneurs were induced to undertake by the artificial cheapening of credit is completed, the old arrangement tends to be restored later on for the reason that consumers will "attempt to expand consumption to the usual proportion"<sup>2</sup> and "the money stream will be re-distributed between consumptive and productive uses"<sup>3</sup> in the same, or nearly the same, proportion as it was distributed before such proportion was artificially distorted from the normal by the injection of money.

But, as Professor NEISSER<sup>4</sup> has shown, there is no reason to expect this return to the old arrangement, if the new roundabout methods of production have been brought to completion. When they are completed, the flow of consumers' goods which was temporarily reduced will rise again, and will even reach a higher level than that from which the expansion started, so that consumers can safely expand their consumption. Forced saving will cease to be necessary when the new processes of production are completed. When they are completed, all that is required to maintain them is that the entrepreneurs—not the consumers—should refrain from "disinvestments", that is, from consuming capital or from spending amortisation quotas on consumption. There is no reason why the old proportion between money spent for consumers' and for producers' goods should be restored. It is not true that the whole of newly injected money becomes income either at once or after a while. Part of it must be retained by the entrepreneurs in order to pay for intermediate goods (in

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<sup>1</sup> 2nd ed., pages 55 *et seq.*

<sup>2</sup> *Ibid.*, page 57.

<sup>3</sup> *Ibid.*, page 58.

<sup>4</sup> "Monetary Expansion and the Structure of Production" in *Social Research*, Vol. I, New York, November 1934, pages 434 *et seq.* Similar objections had been raised by Piero Sraffa, *Economic Journal*, March 1932.

contradistinction to payments for the original factors of production). In other words, only a part of the new money becomes income. Another part remains permanently in the business sphere. It is only if entrepreneurs "dissave"—i.e., if they eat up their capital and refrain from investing that part of their gross receipts which is not net income (working capital and amortisation quotas)—that the pre-inflation arrangement is restored.

We may conclude that the theory under review is bound either to assume that the former proportions between capital and income will be restored by actual capital consumption or that the expansion must be discontinued before the new processes have been completed—or rather before *all* the new processes have been completed. This latter qualification seems to be called for, and is important, because it sheds doubt on the contention that no permanent extension of the process of production can be effected by a credit expansion. It is a plausible assumption that, when the expansion comes to an end, there will always be *some* new processes in an incomplete state. But there is no reason why others should not have been completed. The latter can be retained when the former have to be scrapped. This cessation of work is the essence of the crisis.

But why must there be any incomplete processes at all when the expansion has to end? Professor HAYEK admits the possibility of the expansion's tailing-off gradually, in such a way that the started processes are completed but no new ones are inaugurated (except where voluntary savings are available). But, evidently, he does not believe that this possibility has any practical importance. Much seems to depend on the intensity of the expansion and on certain "indivisibilities", on which Professor ROBERTSON lays so much stress. But the writers of the group under review have not discussed this point in detail. We shall have occasion to deal with it in another connection.

It is evident that no collapse would occur if the  
*Why need* credit expansion could go on indefinitely. It  
*the expansion* follows—the point is made by Professor HAYEK  
*end?* himself—that a crisis is equally inevitable in the  
 case of voluntary saving if the flow of saving is  
 suddenly reduced. It is, however, asserted—although the reasons  
 given are not always quite convincing—that sudden changes are not

likely to occur in respect of voluntary saving, while forced saving must come to an end abruptly. It is therefore very important to ask why should the expansion of credit stop. The answer is that in a closed economy, leaving out of account purely monetary and institutional factors (inability of the banking system to continue expansion within the limits fixed by the gold standard or some other legal or customary rules), the continuance of the expansion will involve a progressive rise in prices. A progressive rise in prices and the danger of a complete collapse of the monetary system is the only insurmountable barrier which prevents an indefinite continuation of the expansion.<sup>1</sup>

It seems to follow that the present theory does not prove, as it claims to do, that a credit expansion which does not lead to a rise in prices but only prevents a fall in prices must have the same evil effect as the more violent type which brings about a rise in the absolute price level. In a progressive economy, where the output of goods in general grows continually and prices tend therefore to fall, there is scope for a continuous expansion of credit at a steady rate.

Against this objection, the following argument has been advanced.<sup>2</sup> It is true, in an economy where *quantitative assumptions* the output, owing to improvements in the methods of production, grows at a constant rate, that a steady expansion in terms of money may be made : that is to say, per unit of time a constant amount of new money may be put into circulation.<sup>3</sup> But even if this is just enough to keep the

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<sup>1</sup> Hayek : "Capital and Industrial Fluctuations" in *Econometrica*, Vol. II, April 1934, page 161. Reprinted as Appendix to 2nd ed. of *Prices and Production*. See also E. F. M. Durbin : *Purchasing Power and Trade Depression*, London, 1933, pages 153-155. The latter concludes that the crisis is a purely monetary phenomenon, brought about by the refusal of the banks to continue the expansion of credit.

<sup>2</sup> Hayek, *op. cit.*, pages 160 and 161.

<sup>3</sup> Mr. Durbin argued that if the rate of increase of production is constant (say 10% per year) an increasing amount of money can be put into circulation without raising prices, because the absolute increase in output per unit of time increases (the 10% is reckoned from an ever-increasing total). Evidently, different quantitative assumptions can be made, and it is impossible to say which one corresponds best to reality. For further comments on the failure of the writers of the present school to make their assumptions quantitatively precise, see the following paragraph.

price level of finished goods constant, prices of factors of production will rise continuously. Hence, successive additions to the money stock will only be able to buy successively diminishing amounts of the factors of production. But, to render the completion of the newly initiated processes of production possible, the entrepreneurs in the upper stages must be enabled to absorb factors of production at a constant rate ; and, as the prices of factors of production rise, a credit expansion at an increasing rate will be necessary to enable them to do so. The conclusion is that a relative inflation, such as can be made within the limits of a constant price level, is not sufficient to allow of the completion of the new roundabout methods of production which have been initiated under the stimulus of the expansion. Either the rate of expansion of credit will be sufficiently increased and prices will be driven up and the inevitable breakdown will be postponed, or the boom will collapse at once owing to an insufficiency in the capital supply.

This reasoning is, however, not convincing.

*Incomplete assumptions.* The result will depend on a complicated quantitative relationship between certain factors—namely : (a) the rate of progress of the economy : that is, the rate of increase in efficiency or output which determines the rate of credit expansion that can be made without raising the price level; (b) the supply of capital which is required in successive periods to make possible the completion of productive processes which have been started in the past. In respect to both factors, Professor HAYEK's argument makes implicitly certain assumptions, the bearing of which is not quite clear. The problem has not been either clearly visualised or explicitly stated. The concrete circumstances by which the magnitude of the two factors is determined are left vague. It is open to grave doubt whether generalisations can be made on this point without extensive factual investigations.

In any case, the theory in its fully developed form seems to make the emergence of a serious disequilibrium dependent upon relatively small fluctuations in the rate of forced saving. This being so, the question arises whether fluctuations of this order of magnitude are not equally likely to occur in the flow of voluntary

savings.<sup>1</sup> If they do occur, evil consequences must be expected, even in the absence of credit inflation. (We shall see, in connection with the discussion of other theories, that there are numerous other disturbances possible which may interrupt the upswing and start a vicious spiral downward—disturbances which are probably of the same, or even of a higher, order of magnitude than the fluctuations in the rate of forced or voluntary saving discussed above.)

To sum up, we may say that the theory has not proved rigorously that a stabilisation of prices in a progressive economy must always lead to over-production, crisis and depression.<sup>2</sup> The practical importance of this conclusion is considerable in view of the American prosperity in the twenties, a notable feature of which was the fact that wholesale prices did not rise.

#### § 5. THE DOWNSWING

The theory of the depression is not nearly so *The depression* fully elaborated by the authors of the monetary *as a period* over-investment school as the theory of the boom. *of readjust-* The depression was originally conceived of by them *ment.* as a process of adjustment of the structure of production, and was explained in non-monetary terms. During the boom, they argued, the process of production is unduly elongated. This elongation has accordingly to be removed and the structure of production has to be shortened or, alternatively, expenditure on consumers' goods must be reduced (by retrenchment of wages and other incomes which are likely to be spent

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<sup>1</sup> Cf. C. Bresciani-Turroni, "The Theory of Saving" in *Economica*, 1936, pages 165 *et seq.*

<sup>2</sup> The following statement of a prominent adherent of the monetary over-investment theory is significant: "This theory does not make the pretence of being the only explanation of all cycles and crises that have ever occurred, nor does it pretend that it states unconditional necessities" (F. Machlup, "Professor Knight and the 'Period of Production'" in *Journal of Political Economy*, Vol. 43, October 1935, page 622.

wholly or mainly on consumers' goods) sufficiently to make the new structure of production possible. This involves a lengthy and painful process of rearrangement. Workers are thrown out of work in the higher stages, and it takes time to absorb them in the lower stages of production. In modern times especially, with inflexible wage systems and the various other obstructions represented by all kinds of State intervention, this process of shifting labour and other means of production is drawn out much longer than is necessary for purely technological reasons.<sup>1</sup>

This non-monetary explanation of the depression *The secondary* is, however, admittedly incomplete and unsatisfactory. *deflation.* The majority of the authors of the group under review were at first very reluctant to recognise that there is a cumulative process of contraction corresponding to the cumulative process of expansion. But eventually it was admitted that, in addition to the difficulties which must arise from the fact that the structure of production does not correspond to the flow of money (in other words, the disturbances which result from the deflection of the money stream from the higher to the lower stages of production), there must be a deflation—that is, a shrinkage in the aggregate flow of money. The difficulties which result from this general shrinkage in the flow of money are superimposed on the disturbances involved in the necessary readjustment in the structure of production. Without assuming a general deflation, it is impossible to explain why the depression spreads to *all* stages and branches of industry, why it is not confined only to those industries which are over-developed and must therefore eventually contract (the higher stages), but extends also to those which are under-developed and must therefore eventually expand (the lower stages). It has become customary to speak of “secondary deflation”, by which it is intended to convey that the deflation does not come about independently, but is induced by the maladjustment in the structure of production which has led to the breakdown. Without the latter, it is believed, the deflation would not start at all.

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<sup>1</sup> See especially L. Robbins : *The Great Depression*, London, 1934.

The mechanism of secondary deflation has not been analysed very closely by the members of the school under review. Broadly speaking, there are two views.

(a) Professor RÖRKE has studied the question in various publications<sup>1</sup> and has come to the conclusion that the process of deflation has a tendency to become cumulative and self-perpetuating. Genetically, it is true, it is connected with the extravagances of the preceding boom and the real maladjustment which the boom has produced. But the intensity of the deflation by no means necessarily corresponds to the extent of the over-investment. It is also untrue, he believes, that the deflation contributes (as is more or less vaguely suggested by the other authors of the monetary over-investment school) to bringing about the necessary adjustment (shortening) in the process of production. Once started, the deflation is propelled by its own momentum and by a number of institutional factors. What these factors are and how they work, we shall discuss at greater length in another connection. HAWTREY, KEYNES, PIGOU and ROBERTSON have contributed most towards the understanding of this phenomenon.<sup>2</sup>

Those who believe that the deflation has a life of its own, so to speak, which is largely independent of the disequilibrium bred out of the preceding boom, are naturally inclined to assume that it can be directly counteracted, even if the boom has been allowed to give rise to a maladjustment in the structure of production.

(b) The other group, in which we may reckon HAYEK, MACHLUP, MISES, ROBBINS, STRIGL, is, or was, of the opinion that the deflation is the necessary consequence of the boom. If once the boom has been allowed to develop and to give rise to maladjustments, the

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<sup>1</sup> See : *Crises and Cycles*, London, 1936 (translated from the German). "Geldtheorie und Weltkrise" in *Deutscher Volkswirt* of September 25th, 1931. "Praktische Konjunkturpolitik" in *Weltwirtschaftliches Archiv*, 34. Band, 1931. "Trends in German Business Cycle Policy" in *Economic Journal*, September 1933.

<sup>2</sup> See, in particular : Keynes : *A Treatise on Money*, London, 1930. Robertson : *Banking Policy and the Price Level*, and the controversy in *Economic Journal* of the following dates : Robertson, "Mr. Keynes' Theory of Money", September 1931 ; Keynes, "A Rejoinder to Mr. Robertson", September 1931 ; Robertson, "Saving and Hoarding", September 1933, and three notes on "Saving and Hoarding", by Keynes, Hawtreay and Robertson, December 1933.

price has to be paid in the shape of a process of deflation. It is admitted by some that, at a certain point in the contraction process, an injection of money may help to shorten the contraction. But they warn us at once that the medicine is very dangerous, that it has to be given in careful doses, and can be useful only at a certain stage of the process and must be administered in a certain way, and will do harm if any one of these conditions is not strictly complied with. As this is too much to expect from the monetary authorities, the only practical policy is to let the deflation run its course and avoid interventions which would only make things worse.

The most coherent theory of the depression *The struggle* along these lines is that of Professor STRIGL.<sup>1</sup> He *for liquidity*. admits that the breakdown of the boom induces a process of hoarding and deflation. After the breakdown of the boom, the banks will not merely stop expansion: they will contract credit in order to increase their liquidity. Under the influence of the general feeling of insecurity and pessimism, industrial firms will also seek to strengthen their cash reserves, and amortisation quotas will be kept in liquid form instead of being invested. This general struggle for liquidity involves hoarding. It means that money, whose function it is to be the vehicle of investment of real capital, fails to fulfil this function and is sterilised for the time being in swollen cash reserves or, in the case of bank money (deposits), annihilated altogether. The general price fall which ensues operates as a further deterrent to investment. The profit rate falls below the money rate. Perhaps the most important external symptom of this process is the intense liquidity and the extremely low rates on the money market which develop during the depression. The low money rates are caused by the fact that the overflow of funds from the money market to the capital market is impeded by an invisible barrier of distrust and pessimism.

It goes without saying that the writers of the group not only admit, but even stress, the fact that the pressure of deflation is intensified and prolonged by all kinds of ill-advised intervention by the State and other public bodies, such as the competitive raising of tariffs, the scramble for gold in order to liquidate existing

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<sup>1</sup> *Kapital und Produktion*, Vienna, 1934, pages 208 *et seq.*



gold-exchange standards, and all similar measures designed to keep up prices and incomes.<sup>1</sup>

## § 6. THE UPTURN (REVIVAL)

If left to itself, the economic system would gradually return to equilibrium with reasonably full employment of all productive resources. The equilibrium could be maintained, if only the banks would refrain from a new credit expansion—in other words, if the money rate of interest were kept on the equilibrium level. The equilibrium rate is implicitly or explicitly defined as that which keeps the effective quantity of money ( $MV$ ) constant.

The concept "effective quantity of money" is very complicated. It is not easily defined in theory and is hopelessly difficult to measure statistically. The difficulty comes in principally through the factor " $V$ ". The velocity of circulation meant is not the transaction velocity, nor is it the income velocity. One might perhaps call it trade velocity, the term being understood to cover all transactions which involve an exchange of goods in all stages of production, but to exclude financial transactions (*e.g.*, on the stock exchange). If the quantity and the transaction velocity of money remain constant, but at the same time the requirements of the financial circulation rise, the result will be a decrease in the effective quantity of money as defined above. But these qualifications are not yet sufficient. Allowance must also be made for integration and disintegration of the process of production. If two or more successive stages in a particular line of industry (such as spinning and weaving), which are carried out by independent firms, are integrated by the formation of a vertical trust, the transfer of the intermediate product from the higher to the lower stage, which formerly gave rise to monetary transactions, may in future be effected by mere entries in the books of the new firm. Thus the merger may set free a certain amount of money. The trade velocity of money need not be changed, but the supply of money ought to

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<sup>1</sup> See especially L. Robbins : *The Great Depression*, London, 1934.

be restricted; otherwise inflationary consequences will ensue.<sup>1</sup>

From these considerations, it follows that the prescription to "keep the effective quantity of money constant" is by no means an easy one to follow.

The writers of the group under review are, however, well aware of the great danger that the discrepancy between the money rate and the equilibrium rate of interest, which prevailed during the depression, will at once be succeeded by a discrepancy in the opposite direction. In view of the falling prices and the state of pessimism and discouragement, the money rate during the downswing stands above the natural rate. When the fall of prices comes to an end and pessimism gives way to a more optimistic outlook, the current money rates, without being changed, will soon stand below the equilibrium rate. In other words, the equilibrium rate is likely to rise above the money rate.<sup>2</sup> In terms of

<sup>1</sup> On this subject, compare M. W. Holtrop: *De Omloopssnelheid van het geld*, Amsterdam, 1928, and "Die Umlaufgeschwindigkeit des Geldes" in *Beiträge zur Geldtheorie*, ed. by Hayek, Vienna, 1933, pages 115-211. Compare further J. Marschak: "Volksvermögen und Kassenbedarf" in *Archiv für Sozialwissenschaft u. Sozialpolitik*, Vol. 68, 1932, pages 385-419, and "Vom Grössensystem der Geldwirtschaft," *loc. cit.*, Vol. 69, 1933, pages 492-504. H. Neisser: *Der Tauschwert des Geldes*, Jena, 1928. "Der Kreislauf des Geldes" in *Weltwirtschaftliches Archiv*, 1931, Vol. 33, pages 365-408. "Volksvermögen und Kassenbedarf" in *Archiv für Sozialwissenschaft u. Sozialpolitik*, Vol. 69, 1933, pages 484-492. A. W. Marget: "A Further Note on Holtrop's Formula for the 'Coefficient of Differentiation' and Related Concepts" in *Journal of Political Economy*, Vol. 41, pages 237-241 and "The Relation between the Velocity of Circulation of Money and the Velocity of Circulation of Goods," *loc. cit.*, Vol. 40, 1932, pages 289-313 and 477-512. J. Schumpeter: "Das Sozialprodukt und die Rechenpfennige" in *Archiv für Sozialwissenschaft u. Sozialpolitik*, Vol. 44, pages 627-715. The whole literature on this subject is well reviewed and summarised by Professor H. S. Ellis, *German Monetary Theory 1905-1933* (Cambridge, Mass., 1934), Part II, and by A. W. Marget, *The Theory of Prices. A Re-examination of the Central Problems of Monetary Theory*, Vol. I, New York, 1938, *passim*.

<sup>2</sup> In the earlier versions of the theory, the assumption was made, more or less explicitly, that the discrepancy between the equilibrium rate and money rate of interest is always brought about by a lowering of the money rate—that is, from the supply side. It is now pretty generally accepted that the situation is more complex and that the equilibrium rate is likely to move upward under the influence of psychological forces, price changes, inventions and discoveries, etc.

supply and demand, this can be expressed by saying that the credit demand curve will move to the right or, loosely speaking, that demand will rise. At the same time, the banks will be in a liquid position, and there is every reason to expect that they will liberally comply with the increased demand for credit. The barrier between the money market and the capital market is broken down, and the funds accumulated behind the barrier flow into the investment market.<sup>1</sup>

Thus a new upswing starts smoothly—at first, almost imperceptibly—out of the ashes of the last boom. No special stimulus from outside is required in the shape of inventions, crop changes, discoveries, etc. We shall see, however, that the writers of the next group believe that such an incentive from outside is necessary. In this respect the present theory is the more “endogenous” in the previously defined sense. But it would seem to be difficult and not very helpful to lay down hard-and-fast rules as to whether the upswing must be assumed to be brought about by forces “internal” or “external” to the economic system.

It is convenient at this point to introduce the question of the existence of unused productive resources of all kinds. The explanation given by the writers of the school under review for the upswing, or rather for the boom, almost invariably starts from an equilibrium position with full employment of the means of production.<sup>2</sup> But the argument can easily be adapted to the other case. If there are unemployed resources, evidently the expansion of credit may go on much longer than when all resources are employed. There need, then, be no shift of factors from the lower to the higher stages,

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<sup>1</sup> Strigl, *op. cit.*, Anhang I. It may be added that, owing to the existence of the various reserves which will have been accumulated during the depression, the expansion can go far with little or no help from the banks.

<sup>2</sup> Professor Hayek in particular has laid down the methodological rule that the analysis of the cyclical movement should never start on the assumption of existing unemployment, because that would beg the question of why unemployment can exist at all. This postulate would seem to narrow down unduly and quite unnecessarily the scope of such analyses.

but only the absorption of unused resources predominantly in those stages of production which are especially stimulated by the expansion—namely, in the upper stages (capital goods industries). Arguing along the lines of the theory under review, one has to assume that the unemployed resources are mainly put to work in the higher stages (capital-goods industries). But, so long as there is a reserve of unemployed resources, the reaction from excess investment, which consists (as we have seen) of a comparative rise in the demand for consumers' goods, will not produce a breakdown, since there is no necessity to detach factors of production from the higher stages. Prices need not rise much. The expansion of credit can go on.

This process has never been analysed so closely as the process of expansion starting from a position of full employment.<sup>1</sup> But, applying the same type of reasoning, the conclusion seems to be as follows : A disequilibrium between the higher and the lower stages is produced by the fact that the unemployed resources are not distributed among the different stages of production in the way they ought to be if ultimate equilibrium is to emerge. A larger amount is absorbed into the higher stages than can in the long run be employed there with the given rate of voluntary saving. Thus the recovery from the depth of the depression has a wrong twist from the beginning.

## § 7. RHYTHM AND PERIODICITY

Professor MISES gives the following answer to *The ideological basis of inflation.* the question why the cycle of prosperity and depression recurs again and again.<sup>2</sup> The behaviour of the banks is responsible for the occurrence of the business cycle. If the banks did not push the money rate below the natural rate by expanding credit, equilibrium would not be disturbed. But why do the banks make the same mistake again and again? "The answer must be : because the

<sup>1</sup> See, however, Bresciani-Turroni, "The Theory of Saving" in *Economica*, May 1936, pages 172-174.

<sup>2</sup> *Geldwertstabilisierung und Konjunkturpolitik*, Jena, 1928, pages 56-61.

prevailing ideology among business-men and politicians looks on the reduction of the rate of interest as an important aim of economic policy, and because they consider an inflationary expansion of credit the best means to attain that objective" (page 58). "The root cause of the phenomenon that one business cycle follows the other is thus of an ideological nature" (page 60).

Professor Mises believes, furthermore, that the commercial banks alone without the support of the central bank can never produce a dangerous credit inflation, because they would immediately lose cash and become insolvent. It is only with the backing of the central bank that it is possible to expand credit sufficiently to produce a dangerous boom. The ability of the central banks to increase the circulation is due to the monopoly which they hold of the issue of bank-notes. If the issue of notes were not a monopoly, if competition were restored in this field of the central banks' activities—that is to say, if every bank had the right to issue notes, convertible into legal tender money (gold)—a dangerous expansion of credit and reduction of the interest rate would be impossible. The unsound banks would quickly be eliminated, and the sound banks would learn by experience that expansion is punished by bankruptcy.<sup>1</sup>

All the other members of this group of writers *What banking policy will eliminate the cycle?* believe that the solution of the problem of the rhythmic nature of the cycle is not so simple as the above. They would all probably agree that there must exist some form of banking policy by following which the business cycle would be eliminated. But they have become more and more conscious of the difficulties of giving precise criteria for the ideal policy. It is not a sufficient explanation to say that from time to time banks lower the rate too much. As has been pointed out above, it is rather the rise in the equilibrium rate than the fall in the money rate which creates the discrepancy between the two.

It follows that it is impossible to define the policy which the banks should pursue in negative terms by saying that the banks should refrain from lowering the rate of interest. It must be stated in

<sup>1</sup> Compare Professor H. Neisser's criticism in his article: "Notenbankfreiheit?" in *Weltwirtschaftliches Archiv*, Vol. 32, pages 446-461, and Vera Smith, *The Rationale of Central Banking*, London, 1936.

positive terms that they should vary the rate in such a way that no credit expansion or contraction ensues in the face of changing demand for credit. But this, again, seems simple and exact only on a superficial view. It has been pointed out above how difficult it is, even in theory, to define exactly what is meant by saying that the effective quantity of money should be kept constant. In addition to the theoretical difficulty of giving exact criteria, there is the extremely difficult task of applying these criteria in concrete cases.

Professor HAYEK has pointed out that, for the individual banker, it is impossible to distinguish between deposits which have been created by voluntary saving and deposits which have an inflationary origin. The velocity of circulation of money, especially of bank money (deposits), may change without affecting the reserves of the banks. Neither bank reserves nor reserve ratios nor the price level are an unfailing criterion of the correct credit policy from the standpoint of the theory under review. Expansion may take place without any action on the part of the banks.

Professor MACHLUP<sup>1</sup> has called attention to one *Cyclical* factor which helps to explain the recurrence of the *implications* cycle and throws into relief the passive rôle of *of seasonal* the banks, at any rate during the first phase of the *variations* upswing. It is this. A considerable portion of *in credit.* the payments which have to be made during a given period, say a year, are not evenly distributed, but are concentrated at certain dates, some of them at the end of each month and others at the end of each quarter. Therefore, even with the most elaborate clearing and compensation arrangements, no complete continuous offsetting of the debts and liabilities of each firm is possible. At the critical dates, at the end of the month and of the quarter, there is therefore always a strong demand for short-term credit and a resultant strain on the money market. If the banks were not able and willing to relieve this monthly and quarterly tightness of money by granting temporary credits, individual firms would be compelled to provide for their requirements at the critical dates by accumulating cash during

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<sup>1</sup> See his book, *Börsenkredit, Industriekredit und Kapitalbildung*, Vienna, 1931, pages 161-178.

the intervals between them. But, as the banks lend money to overcome these difficulties—credit expansion for such a temporary stringency being generally regarded as perfectly legitimate and safe—it is not necessary to accumulate cash, and the sums involved can be invested instead.

It is clear that we have here a source of inflation; and the inflation, according to Professor MACHLUP, will not be confined to the single occasion of the first introduction of these “ultimo loans”, but will tend to recur cyclically. “While the utilisation of temporary surplus cash together with (inflationary) bank credit created the possibility of initiating illicitly long processes of production, the depression, after the elimination of the untenable enterprises, will release these sums again” (pages 175 and 176). During the depression, the investment of these sums is impossible, and they accumulate on the money market; but, as soon as the spirit of enterprise revives, they can be utilised for financing the boom for a long time without any, or with very little, additional bank credit.<sup>1</sup>

We may conclude that the question why one cycle follows another without interruption cannot be answered, on the basis of the theory under review, by a simple formula. The inevitability of the sequence “forced saving—breakdown—depression” has been somewhat whittled down. The severity of the decline is no longer believed to vary rigidly with the degree of the structural maladjustments which gave rise to it. There is no longer the same confidence in the inevitability or the curative function of the depression. Above all, it has been realised to be impossible to fix the sole responsibility for the boom on the expansionary propensities of the banking system. Even in a purely cash economy, movements of hoarding and dishoarding might be induced, with the result that waves of expansion and contraction of economic activity would take place. It thus seems impossible to reduce to a few simple rules the problem of what ought to be done to eliminate the cycle. The high expectations which were originally entertained in this respect have given way to a much more cautious and much more sceptical attitude.

<sup>1</sup> Whilst there can be little doubt that we have here a possible source of inflation (whatever its quantitative importance), it is difficult to see in this factor any independent *cyclical* significance.

## § 8. INTERNATIONAL COMPLICATIONS

*Guiding principles.* A systematic account of the international aspect of the business cycle on the basis of the theory hitherto under consideration has never been attempted. With the help of the theory of the international money mechanism, it is, however, possible to trace out the way in which (if one accepts the monetary over-investment theory) the course of the cycle in a particular country must be influenced by its position in the international economy, and the manner in which the cyclical movement in such country is likely to react on the country's international trade and on the internal situation of other countries.

As in the case of the purely monetary explanation of the business cycle, the first questions to be asked are : How does a given change in the international situation of a country influence the expansion or contraction of credit? Is it likely to facilitate and prolong, or retard, an expansion already under way? How is a contraction in process influenced by a given change in other countries? It is impossible to enumerate and systematise at this point all the conceivable contingencies. But a few principles may be laid down and some illustrations be given.

*Influences through the balance of payments.* Any improvement in the balance of payments—that is to say, any increase in the demand for the means of payment of a given country in terms of the money of other countries—will have an expansionist influence. This improvement may be due to a great variety of circumstances—changes in the demand for particular commodities, crop changes, capital movements, etc. The erection of new tariff walls by an individual country, if not followed by compensatory action on the part of other countries, will have a favourable influence on the international monetary situation of the country which has raised its tariffs. In other words, it will enable the latter to expand its circulation without a deterioration of its exchange rate. Thus, the immediate influence of protectionist measures may be a stimulation of prosperity or an alleviation of depression. But the conditions



in which this is true must be borne in mind. If many countries pursue this policy at the same time, the stimulating influence is lost. In the long run, the raising of tariff walls impairs the national dividends of all the countries involved.<sup>1</sup> Indirect effects (*e.g.*, on capital movements) may prevent even the immediate stimulation afforded by protectionist measures. Finally, an improvement in the balance of payments can always be utilised as a means of increasing the gold and foreign-exchange reserve in lieu of expanding the circulation.

While international influences are capable of stimulating or retarding a process of expansion or contraction, they may also arrest and reverse it—that is to say, international forces may start a revival or precipitate a crisis and depression in a country.

Under the gold standard, the monetary authorities are obliged, if the country is losing gold, to put the brake on expansion. Gold may flow out either because the country has expanded more rapidly than other countries and prices are getting out of line with those in the rest of the world, or because other countries have started to contract or because there is a movement of capital (which may have been brought about by a great variety of causes), or because of a crop failure which necessitates increased imports or reduces exports, etc. Instead of contracting, a country may choose to leave the gold standard. If this is not thought safe, as being likely to lead to a flight of capital, resort may be had to exchange control. Thus, innumerable possibilities may arise, which cannot all be worked out at this point: but they can easily be analysed in the way indicated, although it may be extremely difficult to foresee in any given case the outcome of the many forces and reactions involved.

The fact that a crisis and depression or a revival is brought about in one way or another by “international forces” in no way, therefore, invalidates the theory of the business cycle, even though the theory has been elaborated without taking into account these international complications.

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<sup>1</sup> Therefore, the statement made in the text is perfectly compatible with the free-trade argument. The qualifications made should be sufficient to exclude protectionist measures from the arsenal of a rational depression policy.

In arguing on the basis of the over-investment theory, special attention must be paid to international capital movements.<sup>1</sup> They not only affect the purely monetary situation by stimulating or retarding the expansion or contraction of credit : they have also a bearing on the structure of production. An individual country may finance a boom, wholly or partly, by capital imports from other countries instead of by an internal expansion of credit and forced saving. So long as this is possible, the reaction which the theory under review holds responsible for the breakdown—namely, a corresponding rise in the demand for consumers' goods—may be staved off. Thus, in so far as a particular country is concerned, the boom may be prolonged. On the other hand, international capital movements are subject to risks and disturbances which are absent in the case of an internal expansion.

An interesting question is how the composition of exports and imports of a country changes during the different phases of the cycle. It might be supposed that capital imports during the upswing are bound to be effected through the import of capital goods. As a general statement, this would, however, be wrong. In any given situation in respect of tariffs or otherwise, what a country imports will depend on the comparative cost situation or, in other words, on the comparative facilities of the various countries for the production of different types of goods. It is conceivable that capital for investment purposes may be imported, not in the shape of capital goods (raw materials, machinery, electrical equipment, etc.), but in the shape of consumers' goods. This will be the case in a country where capital-goods industries and the production of raw materials are well developed, while consumers' goods industries are less so.<sup>2</sup>

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<sup>1</sup> See especially R. Nurkse : *Internationale Kapitalbewegungen*, Vienna, 1935, Ch. V, pages 187-211.

<sup>2</sup> We need not go into the causes which give a country an advantage in the production of this or that type of goods. They range from climatic conditions and the quality of the soil to the structure of the tariff and social legislation. Cf. B. Ohlin, *Interregional and International Trade*, *passim*, Cambridge, Mass. (U.S.A.), 1933.

It is difficult to find concrete examples which illustrate this proposition, since in actual fact the situation is usually very complex. Countries do not usually specialise solely in the production of consumers' goods, capital equipment, or raw materials, etc. Still, the economic equipment is usually deficient in various directions, though protectionist policy has done much to diversify national production and lessen international specialisation. On the whole, industrial countries are at the same time exporters of capital. Therefore, it is natural that capital movement should take place chiefly through the shipment of machinery, railroad and electrical equipment, etc. The outstanding example of capital movements taking place through the import of foodstuffs, other articles of consumption and raw materials is Germany in the post-war and post-inflation period—that is, from 1924 to 1928.

It is hoped that these remarks give an idea of the almost endless multiformity of the international complications, and at the same time of the possibility of analysing each of these innumerable cases with the help of a few principles, and of understanding them as special cases which can be brought under the general doctrine.

#### § 9. CONCLUDING REMARKS

The most valuable and original contributions of the monetary over-investment theory are (1) the analysis of the maladjustment in the structure of production brought about by the credit expansion during the prosperity phase of the cycle and (2) the explanation of the breakdown as consequent on that maladjustment. But our analysis has also shown that the theory is not in all respects complete. The claim to exclusive validity is open to doubt. It is a little difficult, for example, to understand why the transition to a more roundabout process of production should be associated with prosperity and the return to a less roundabout process a synonym for depression. Why should not the original inflationary expansion of investment cause as much dislocation in the production of consumers' goods as the subsequent rise in consumers' demand is said to cause in the production of investment goods ?<sup>1</sup>

<sup>1</sup> Cf. Durbin : *The Problem of Credit Policy*, 1935 ; Bresciani-Turroni, " The Theory of Saving " in *Economica*, May 1936, pages 175 and 176.

As to the explanation of the depression, especially the later phases of the depression, there is not a high measure of agreement between the various members of the school. So far as the existence of a vicious spiral of deflation is admitted, the analysis of the deflation is, on broad lines, not dissimilar from the analysis given by writers of other schools.

### B. The Non-monetary Over-investment Theories

#### § 10. GENERAL CHARACTERISTICS

The most prominent writers in this group are  
*Principal* Professors A. SPIETHOFF<sup>1</sup> and G. CASSEL.<sup>2</sup> In the  
*authors.* writings of these two authors (of SPIETHOFF especially), we find the culmination of a very important line of thought which can be traced back to MARX. Spiethoff's immediate forerunner was the well-known Russian author TUGAN-BARANOWSKI.<sup>3</sup> Both SPIETHOFF and CASSEL have had a great influence on business cycle theory, particularly in Germany,<sup>4</sup> but also in the Scandinavian and Anglo-Saxon countries. WICKSELL himself adopted SPIETHOFF's explanation of the cycle.

With regard to Professor CASSEL, it must be remarked that we are here dealing primarily with the theory as expounded in the earlier editions of his *Theory of Social Economy*. In his later books and especially in his popular writings, he has more or less

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<sup>1</sup> See "Vorbemerkungen zu einer Theorie der Ueberproduktion" in *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft*, 1902. "Krisen" in *Handwörterbuch der Staatswissenschaften*, 1925.

<sup>2</sup> See *Theory of Social Economy*, revised ed., London, 1932, Vol. II (translated from the German).

<sup>3</sup> See *Les Crises industrielles en Angleterre*, Paris, 1913 (translated from the Russian). For further references, see A. H. Hansen, *Business Cycle Theory*, 1927, Ch. IV.

<sup>4</sup> Cf., e.g., the highly interesting analysis of the cyclical movement on the basis of the Cassel-Spiethoff theory by Professor Georg Halm in his article "Das Zinsproblem am Geld- und Kapitalmarkt" in *Jahrbücher für Nationalökonomie und Statistik*, Vol. 125, 1926, pages 1-34 and 97-121.

accepted a purely monetary explanation, at least so far as the 1929-1936 depression is concerned.<sup>1</sup>

It is significant that Professor SPIETHOFF, with his quite different theoretical background, has reached, so far as concerns the interpretation of the later phases of the upswing and of the situation which leads to the collapse, substantially the same result as the writers of the monetary over-investment school and Professor CASSEL.

The difference between the monetary and non-monetary over-investment theories concerns, as the names suggest, the rôle of money and monetary capital goods. factors and institutions in bringing about the boom and the over-investment which leads to the collapse and depression. The theory of the writers of this group does not run in monetary terms; they mention monetary forces, but relegate them to a relatively subordinate rôle. It can, however, be shown that they are compelled to assume an elastic currency or credit supply in order to prove what they wish to demonstrate. But monetary factors are for them passive conditions which can be taken for granted rather than impelling forces.

Both Professors SPIETHOFF and CASSEL emphatically assert that the business cycle is characterised by changes in the production of capital goods, especially of fixed capital equipment. The production of consumers' goods does not exhibit the same regularity of change during the business cycle. Professor SPIETHOFF makes the point that upswings have occurred during which consumption has actually fallen. This was the case, according to him, in Germany in the years 1845-1847/48, when the economic situation of the working classes positively deteriorated because of rising food prices due to a series of crop failures.<sup>2</sup> But, even if no account is taken of changes in agricultural production, which are only remotely connected with the ups and downs of industrial production, "the

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<sup>1</sup> See, e.g., *The Downfall of the Gold Standard*, Oxford, 1936. Like Mr. Hawtrey, he believes that "the economic development of post-war times has been so strikingly dominated by great monetary disturbances that trade cycles of the earlier kind are no longer applicable" (*The Theory of Social Economy*, Vol. II, page 538).

<sup>2</sup> See Spiethoff's article "Krisen" in the *Handwörterbuch der Staatswissenschaften*, Vol. VI, 4th ed., Jena, 1925, page 49.

production of consumption goods shows no marked dependence on trade cycles. This means that the alternation between periods of boom and slump is fundamentally a variation in the production of fixed capital, but has no direct connection with the rest of production."<sup>1</sup>

## § II. THE UPSWING

Professor SPIETHOFF describes the mechanism of *Cumulative expansion process.* the cumulative and self-sustaining process of expansion, which begins to work after the dead point of the depression has been overcome, in approximately the same way as the monetary over-investment school. (In respect to this particular problem, indeed, there is now much agreement even outside the schools which we have analysed so far.) The revival of investment activity generates income and purchasing power. Demand rises, first for capital goods and investment materials (iron, steel, cement, lumber, bricks) and later also for consumption goods. Prices rise, mainly prices of capital goods and investment materials. This stimulates further investment. Profits are made which swell the funds available for investment and provide an important psychological stimulus for further expansion. Thus, like a snowball, prosperity increases rapidly as it proceeds.

The monetary side of this process is not closely analysed. But Professor SPIETHOFF admits that "credit is an indispensable means to the upswing".<sup>2</sup> Professor CASSEL is less explicit in this respect. But it can be inferred from various remarks which he lets fall that he realises the necessity for an elastic currency supply. Both writers seem to believe that monetary funds are accumulated during the depression, on which the producers can draw during the upswing to finance the expansion. It follows that no positive steps need be taken by the banking system, at any rate during the first phases of the upswing. It is, however, not denied that, after a certain point, support by the banks is required to carry on.

<sup>1</sup> G. Cassel : *The Theory of Social Economy*, revised ed., London, 1932, page 552.

<sup>2</sup> *Op. cit.*, page 74.

These monetary conditions and the monetary mechanism of credit expansion have been more thoroughly explored by the monetary school. In the writings of Professor ROBERTSON, Mr. KEYNES and Professor PIGOU (all of whom have much in common with SPIETHOFF and CASSEL) will be found the best synthesis of the monetary and non-monetary aspects of the process.

## § 12. THE DOWN-TURN (CRISIS)

The non-monetary over-investment school offers *Shortage of its most valuable contribution to the theory of the capital.* business cycle in connection with the explanation of the breakdown of the boom. The upswing cannot go on indefinitely; but how, precisely, is it brought to an end?

Professor SPIETHOFF rejects all under-consumption theories which assume that the collapse is due to a shrinkage of the demand for consumers' goods, or to its failure to rise (owing to the lag in the rise of wages behind the rise of prices and profits), or to the fact that too much is being saved by individuals and corporations. He believes, on the contrary, that it is an actual shortage of capital that brings about the crisis; and he is at great pains to point out that capital shortage does not mean simply a deficiency of monetary funds, but is the symptom of a serious disproportion in the production of certain well-defined types of goods. Therefore, monetary measures can never prevent the crisis. It is not over-saving but under-saving which is responsible for the collapse; it is not under-consumption but, in a sense, over-consumption which leads to a scarcity of capital and brings about the end of the boom.

In order to show this in detail, Professor SPIETHOFF distinguishes four categories of goods: (1) goods for current consumption (food, clothing, etc.); (2) durable and semi-durable consumption goods such as residential buildings, water supply, electric light installations, gas plants and other public utilities (furniture and motor-cars occupy an intermediate position between (1) and (2)); (3) durable capital goods (fixed capital) such as mines, ironworks, brick and cement factories, textile plants, machine factories, railroads, power plants, etc.; (4) materials required for

the construction of durable goods ("goods for indirect or reproductive consumption"), such as iron, steel, cement, lumber, bricks.

It is between the production of these categories of goods, he says, that a disproportion regularly develops during the boom. The result is a situation in which there is shortage and plenty at the same time. As these categories of goods are complementary, a shortage of one category means *ipso facto* over-production of the other. It is as if one glove of a pair were lost. The one that remains constitutes a useless and unsaleable surplus stock; the missing one represents an actual deficiency.

<i>Over- production of durable goods.</i>	Over-production occurs regularly in the case of durable capital goods, and also in the case of durable consumption goods. This necessarily involves a decrease in demand and over-production of constructional material such as iron, steel, cement, etc.
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This discrepancy between demand for, and supply of, durable instruments has its causes on the supply side as well as on the side of the demand. Additions to the capital equipment are paid for out of "capital" ("Erwerbskapital"). Therefore, the production and marketing of durable capital goods (and to a certain extent also of durable consumption goods) must depend on the amount of "capital" which seeks investment. (To-day we should rather say that the demand for such goods is constituted by savings out of income, plus supplements to the flow of saving arising out of various inflationary sources—additional bank credits and hoards of all kinds.) According to Professor SPIETHOFF, the formation of monetary capital ("Erwerbskapital") tends usually to diminish at the end of the boom for various reasons. Wages rise—which has an adverse effect on the rate of saving; and the increased production encourages the adoption of wasteful methods and leads to losses. Thus the demand for capital equipment falls off.

More important, however, than the decrease in demand is the increase in production and supply. A large proportion of the new capital equipment constructed during the boom is used to produce materials which are required for the further production of such new equipment. So the supply rises progressively in face of a constant or falling demand.



This over-production has been greatly facilitated—or rather, perhaps, made possible—by the development of modern methods of production, which have rendered the production of fixed capital goods largely independent of organic growth. Professor SPIETHOFF refers especially to the substitution of iron, steel and cement for lumber, of mineral coal for charcoal, etc. Contributing factors are furthermore the long interval between the beginning of the construction of plant and factory and the point at which they begin to turn out their products, and the durability of these instruments. (These latter circumstances will be discussed more fully in connection with other theories of the cycle in which they are pivotal.)

Thus there develops an over-production of  
*Shortage of* producers' goods and durable consumers' goods.  
*labour* These are the remaining glove. But where is the  
*and means* missing one? Is not the missing one a purely  
*of subsistence.* monetary phenomenon—namely, investible funds  
 which could be supplied by the printing press?  
 No, answers Professor SPIETHOFF. The lack of monetary funds available for investment represents a shortage of physical goods of a certain kind. It becomes impossible to utilise the whole supply of raw material and equipment destined for the construction of more capital equipment and durable consumption goods, for the simple reason that they alone cannot do the job. They could do it only in collaboration with labour and incidentally with means of subsistence for the labourers. A lack of investible funds simply means that these complementary goods are not available. There we have the missing glove. It consists of labour and consumers' goods.

From this proposition we must draw the conclusion (although Professor SPIETHOFF does not do so himself) that, if the rate of saving did increase—*i.e.*, if some people did refrain from consuming their whole income—the complementary goods would be forthcoming and the boom could continue.

If we have correctly interpreted Professor SPIETHOFFS' theory,<sup>1</sup> his diagnosis of the disequilibrium at the end of the boom is substantially the same as that given by the monetary over-investment school. The allocation of factors of production to

<sup>1</sup> See the penetrating critical analysis by Professor G. Halm (*loc. cit.*, pages 30-34).

the various stages of production does not correspond to the flow of money. The lower stages in the structure of production are under-developed; the higher stages which produce capital goods are over-developed.

It might sound paradoxical that a "lack" of *Consumers' goods and capital-goods industries.* consumers' goods should be the cause of the breakdown in the capital-goods industries. If there is such a shortage, consumers' goods industries must flourish. But should not that be a cause for rejoicing rather than for despair to the capital-goods industries? Professor SPIETHOFF does not analyse this objection explicitly. But, obviously, the question must be answered in the same way as it was answered by the monetary over-investment school. If the necessary credit is available and the rate of interest remains low, the prosperity of the consumers' goods industries will automatically spread to the higher stages, because the latter will then be in a position to compete successfully for the factors of production with the former. If unused factors of production (unemployed labourers, surplus stocks and idle plant) are available and if there are no special causes (*e.g.*, lack of confidence due to political risks) which deter people from investment in spite of profitable opportunities, an all-round increase in production will follow with no rise, or only a slight rise, in prices. If this, however, is not the case, if additional credit is not available and all factors are reasonably well employed, as is the case at the end of the boom, the rate of interest will rise and the capital-goods industries will not be able to retain all the factors which they used to employ: they will be depressed although, or even *because*, the consumers' goods industries prosper. (It is not denied that the prosperity of the latter also will soon come to an end, because the difficulties in the capital-goods industries will lead to a destruction of purchasing power and a fall in the demand for consumers' goods.)

Such a situation is clearly possible, although it looks superficially paradoxical. The phenomenon (alleged to be frequent)<sup>1</sup>

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<sup>1</sup> Recent statistical studies have made it very doubtful whether such a lag actually exists. Compare, *e.g.*, Professor J. Tinbergen in *Statistical Testing of Business-Cycle Theories II. Business cycles in the United States, 1919-1937*. In preparation.

of consumers' goods industries feeling the setback of the depression much later than the capital-goods industry is regarded as a verification of the theory. Another question, which will be raised in connection with the discussion of rival theories, is whether this is the only possible outcome of the boom, or whether there is not another cause of the breakdown just as conceivable as a shortage of capital in the sense of a relative over-development of producers' goods industries, which is again equivalent to under-saving or over-consumption.

Professor CASSEL's explanation of the collapse of *The Cassel* the typical investment boom is much the same as *variant*. SPIETHOFF's, although couched in different language and not so fully developed in terms of goods.

In the first phase of the upswing, he says, the increase in production runs parallel to, or is even caused and encouraged by, a corresponding shift in the flow of money. That is to say, there is a strong tendency towards an acceleration of the formation of capital—i.e., an increase in the flow of savings. In the later phases, capital accumulation in this sense slows down, while the production of fixed capital equipment increases. The discrepancy between the flow of money and the trend of production eventually brings about the crisis. "The typical modern trade boom does not mean over-production, or an over-estimate of the demands of the consumers or the needs of the community for the services of fixed capital, but an over-estimate of the supply of capital, or of the amount of savings available for taking over the real capital produced. What is really over-estimated is the capacity of the capitalists to provide savings in sufficient quantity."<sup>1</sup>

### § 13. THE DOWNSWING (DEPRESSION)

Professor SPIETHOFF lays great emphasis on the *Psychological* psychological reaction which is bound to come *elements.* after the excesses of the boom. Pessimism and reluctance to invest and to embark on new enterprises prevail during the depression. The severity and

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<sup>1</sup> *The Theory of Social Economy*, Vol. II, page 649.

length of the depression depend very much on whether the boom has collapsed with the great detonation of a crisis, financial panic and numerous bankruptcies, or whether it has come to an end gradually, without thunder and lightning—a point much stressed also by Professor PIGOU. Much depends also on the international situation of the country. If the boom was financed from abroad, the consequences of the cessation of capital investments, according to Professor SPIETHOFF, will probably be less severe, because in that case the capital-exporting country has to bear its share of the difficulties and the capital-importing country is to that extent relieved.

The process of contraction also has a cumulative nature. Pessimism and reluctance to invest cause a shrinkage in the volume of purchasing power. Money is hoarded or used to finance losses instead of being invested and spent on producers' goods. Since savings are not invested, everything that increases the rate of saving (*e.g.*, inequality in the distribution of income) has a depressing influence. (During the upswing the influence is quite the reverse.) Prices fall and this intensifies the prevailing pessimism. There are many other intensifying factors of an institutional nature—*e.g.*, reluctance to reduce prices, especially on the part of industries that are cartellised, and rigidity of wages.

The analysis of these factors, which intensify the depression, has, however, been carried much farther in recent years, especially by English writers belonging to various schools such as KEYNES, PIGOU, ROBBINS, ROBERTSON. At this point of SPIETHOFF's description the monetary aspects are somewhat neglected.

#### § 14. THE UPTURN (REVIVAL)

According to Professors SPIETHOFF and CASSEL, *Cost adjustments and new investment opportunities* the revival is never brought about by an increase in the demand for consumers' goods, but always through increased investment. New investments are stimulated by the lowering of construction cost of capital equipment which ensues during the depression as a result of reduction of wages, fall in the price of raw materials, reduction of interest charges, adoption

of improved methods of production, etc. Professor CASSEL lays stress on the fall of the rate of interest as exercising an immediate and powerful influence on the value of fixed capital equipment. But on the whole, according to Professor SPIETHOFF—Professor CASSEL is less pessimistic in this respect—these adjustments, which are automatically made during the depression, are not of themselves sufficient to revive the spirit of enterprise and overcome the dead point of the depression. Stronger incentives must come from outside, such as new inventions or discoveries of new markets or good harvests—factors which open out new opportunities for investment and raise the prospective rate of profit. There is now agreement among a great number of students of the subject that the cycles of the nineteenth century were ushered in by discoveries and inventions. In the terminology of the monetary school, it may be said that the discrepancy between the money rate of interest and the profit rate was brought about by a rise in the profit rate rather than by a fall in the money rate.

It would appear that in this respect no hard-and-fast rule can be laid down. If the rate of interest is low and credit plentiful and easily available, the expansion will come sooner or later ; but, if a special stimulus appears in the shape of an invention, the opening-up of new territories or the like, the expansion will come earlier and will gather momentum more quickly.

Many further details can be, and have been, *Schumpeter* added to the picture. Psychological and sociological *and the rôle* factors can be adduced which may play a rôle in *of the business* bringing about an acceleration or retardation in the *pioneer.* response of entrepreneurs to existing opportunities

for profitable investment. The psychological factors will be analysed separately. At this point, however, we may mention the explanation which Professor SCHUMPETER has offered for the fact that innovations appear *en masse*.<sup>1</sup> One must distinguish,

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<sup>1</sup> See *The Theory of Economic Development*, Cambridge, Mass., 1934. (Translated from the German. The first German edition was published in 1911.) It must, however, be noted that Professor Schumpeter puts forward this theory, not as an explanation of the lower turning-point, but of the movement of the system away from equilibrium. He believes that it is possible to divide the upswing as well as the downswing in two sharply

he says, between additions to our technological knowledge (that is, inventions which create the possibility of innovations in the productive processes actually employed) on the one hand and the practical introduction of the new methods on the other hand. What matters is not the discovery in the laboratory of a new process but the actual application of a new technique—it may be, a technique the feasibility of which was discovered a long time ago. There is no reason why inventions should not be distributed more or less evenly in time; but there are good reasons for believing that, in practice, new methods come into use in a mass. Only a few business-men have the imaginative power and energy successfully to introduce innovations such as new productive processes for the production of goods already on the market or the introduction of new types of goods, opening-up of new markets, improved methods of marketing and the like. But, while only a few are able to take the lead, many can follow. Once someone has gone ahead and demonstrated the profitability of a “new combination of the factors of production” (as Professor SCHUMPETER puts it), others can easily imitate him. Thus, whenever a few successful innovations appear, immediately a host

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distinguishable phases : a movement towards equilibrium called revival and recession respectively, and a movement away from equilibrium, prosperity (or boom) and depression. Revival and prosperity constitute the upswing, recession and depression the downswing. The recuperative forces of adjustment inherent in the economic system are sufficient, so Professor Schumpeter believes, to lift output and employment from the subnormal level to which it has been reduced by the vicious spiral of deflation during the depression phase ; no special incentives are needed to explain the lower turning-point. Professor Schumpeter’s “genial entrepreneur” and the crowd of imitators who follow him come in later during the upswing and prevent the system from settling down for any length of time at an equilibrium position.

Serious objections can be raised against this view. But the idea that the system passes through an equilibrium, or at least approaches a normal position, somewhere between the upper and the lower turning-point seems to have been vaguely envisaged by many writers. It will be clearly elaborated in Professor Schumpeter’s forthcoming volume on the business cycle. It may be added that the fact that Professor Hayek starts his analysis from an equilibrium position seems to indicate rather a methodological principle than the proposition that the system actually passes through an equilibrium position on its way from the lower to the upper turning-point.

of others follow them. (While Professor SCHUMPETER's account of the revival and the description of the cumulative process of expansion fits in perfectly well with Professor SPIETHOFF's theory, his story of the upper turning-point is quite different and will be considered later.)

### § 15. RHYTHM AND PERIODICITY

We may well start the discussion of this section with *Business mechanism likened to steam-engine.* a famous metaphor from Professor SPIETHOFF's fore-runner—Michael TUGAN-BARANOWSKI.<sup>1</sup> TUGAN-BARANOWSKI likens the working of the business-cycle mechanism to that of a steam-engine. "The accumulation of free, loanable capital plays the role of the steam in the cylinder; when the pressure of the steam on the piston attains a certain force, the resistance of the piston is overcome, the piston is set in motion and moves to the end of the cylinder; an opening appears for the steam and the piston recedes to its old position. In the same manner the accumulating free loan capital, after having attained a certain pressure, forces its way into industry, which it sets in motion; it is spent and industry returns to its earlier position."<sup>2</sup>

Now the question arises : What corresponds in the business system to the fuel of the steam-engine ? Why is it that the cyclical movement goes on and on and never comes to an end ? Why do these waves of economic activity not gradually die down like the movement of the steam-engine when no fresh fuel is added ? Professor SPIETHOFF's answer to these questions must be inferred from his theory in general, because he does not put the question explicitly.

The fact that oscillations are large is to be *Inevitability of the cycle.* explained by the cumulative nature of the expansion and contraction process, which again is largely due to psychological reactions. Expansion creates optimism which stimulates investment and intensifies expansion. Contraction creates pessimism, which increases contraction.

<sup>1</sup> *Studien für Geschichte der Handelskrisen in England*, Jena, 1901.

<sup>2</sup> *Loc. cit.*, page 251.

Expansion comes to an end because it is almost impossible to estimate correctly the supply of savings and capital. The construction of capital goods must be undertaken in anticipation of demand, which in turn is constituted by saving and cannot be foreseen correctly. The durability of instruments on the one hand and the length of the construction period on the other make it difficult for supply and demand to keep pace.

The state of depression is interrupted (*a*) because it creates automatically a situation favourable to the revival of investment, (*b*) because pessimism disappears with the lapse of time, and (*c*) because of the introduction of stimuli from outside. Professor SPIETHOFF would probably subscribe to Professor PRIGOU's theory of the mutual generation of errors of optimism and pessimism (which will be discussed later on<sup>1</sup>).

Professor CASSEL says explicitly that the cyclical movement would gradually die down, if no stimuli were provided from time to time from the outside in the shape of inventions and discoveries.

On the whole, it may be said that the question has not been systematically discussed or satisfactorily answered by the writers of the school under review. But the tenor of the theory suggests an answer in terms of both endogenous and exogenous forces—*i.e.*, of responses of the economic system to shocks from without.

There is, however, an idea vaguely indicated at *Re-investment* various points in Professor SPIETHOFF's writings *cycles.* which can be used for the explanation of the regular recurrence of cycles of prosperity and depression.

I mean the idea that the massing of the construction of fixed capital equipment at certain dates or during certain short periods of time gives rise to the recurrence of such outbursts of investment, or rather re-investment, in the future, owing to the fact that machinery and other durable equipment installed around a certain date will come up for replacement massed, although probably less densely, around a certain date in the future. This idea that, given an initial boom in capital construction, replacement tends to assume a cyclical pattern, that re-investment moves in cycles, can be traced back to KARL MARX. It has been fully elaborated with all necessary

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<sup>1</sup> See Chapter 6, § 2, page 148 below.



qualifications by Dr. Johan EINARSEN, who has also written its history and has applied the principle to a concrete case with the help of modern statistical devices in his admirable study, *Reinvestment Cycles and their Manifestation in the Norwegian Shipping Industry*.<sup>1</sup>

## § 16. INTERNATIONAL COMPLICATIONS

The question of international complications has not been exhaustively and systematically treated by the theorists of the present group; but it is in principle not very difficult to imagine how the cyclical movement in one country must be assumed, from the point of view of the non-monetary over-investment theory, to influence other countries and to be influenced by international trade conditions. What has been said in this respect in connection with the *monetary* over-investment theory applies also to the *non-monetary* version of the over-investment school. It has been mentioned already that the opening of investment opportunities in new territories is considered to have been one of the most potent incentives for the revival of investment during the 19th century.<sup>2</sup>

### *C. Over-investment resulting from Changes in the Demand for Finished Goods : The Principle of Acceleration and Magnification of Derived Demand*

## § 17. INTRODUCTION

The monetary over-investment theory starts from the discrepancy between the natural and the money rate of interest, and holds monetary factors responsible for the recurrence of over-investment and disequilibrium. The non-monetary branch of the over-investment school emphasises non-monetary factors, technological changes, innovations and discoveries. The difference between the two types of over-investment

<sup>1</sup> Published by the University Institute of Economics, Oslo, 1938. See also article by the same author, "Reinvestment Cycles" in the *Review of Economic Statistics*, Vol. 20, February 1938.

<sup>2</sup> This idea is fundamental to the Neo-Marxian theory of Imperialism of such writers as Rosa Luxemburg, *Akkumulation des Kapitals*, and

theories is not very great : there are intermediate positions, and the two types shade off into each other. They are at one in the belief that the impetus which sets the process of expansion in motion comes from the side of investment and not from that of consumption. Demand for consumers' goods is, however, affected indirectly by changes in investment; and variations in the demand for consumers' goods are an important link in the cumulative processes of expansion and contraction. But it has not been sufficiently investigated how changes in consumers' demand react back on investment.

We have now to discuss an explanation of the business cycle, given by a number of writers, which assigns a leading rôle to changes in the demand for consumers' goods. It is the proposition that, for technological reasons, slight changes in the demand for consumers' goods produce much more violent variations in the demand for producers' goods. This proposition alone does not furnish a complete theory of the business cycle. It must be combined with other relationships between economic variables, and there are various possible schemes into which it can be fitted. It does not necessarily lead to the over-investment theory; and, in fact, the explanations which are built on the acceleration principle are not as a rule classified as over-investment theories. But we shall see that it can easily be combined with the over-investment explanation. The acceleration principle and the over-investment theory as discussed in the preceding pages are in reality not alternative but complementary explanations. The proposition that changes in demand for consumers' goods are transmitted with increasing intensity to the higher stages of production serves, in conjunction with other factors which have already been mentioned, as an explanation of the cumulative force and self-sustaining nature of the upward movement. It adds an important touch to the picture of the typical business cycle as painted by the over-investment theoreticians. The matter is of the greatest practical importance for the reason that much light is shed on the fact, which in the last few years has been more and more recognised and

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Fritz Sternberg, *Imperialismus* (1928). For a brief review, criticism and references to this literature compare H. Neisser, *Some International Aspects of the Business Cycle*, Philadelphia, 1936, pages 161-172.

emphasised, that it is the production of *durable* goods, of consumers' goods as well as of capital goods, which fluctuates most violently during the business cycle.

The following authors have developed the acceleration principle—ALBERT AFTALION,<sup>1</sup> BICKERDIKE,<sup>2</sup> MENTOR BOUNIATIAN,<sup>3</sup> T. N. CARVER,<sup>4</sup> and MARCO FANNO.<sup>5</sup> In recent years, it has been expounded most fully by J. M. CLARK,<sup>6</sup> SIMON KUZNETS,<sup>7</sup> A. C. PIGOU<sup>8</sup> and R. F. HARROD.<sup>9</sup> W. C. MITCHELL,<sup>10</sup> D. H. ROBERTSON,<sup>11</sup> and A. SPIETHOFF<sup>12</sup> have incorporated it into their account of the cycle as a contributory factor.<sup>13</sup> Mr. HARROD has, without much reference to the previous literature, rechristened the principle as "the Relation".<sup>14</sup>

The discussion will proceed in two stages. First, the economic-technological principle will be expounded with the necessary

<sup>1</sup> *Les crises périodiques de surproduction*, Paris, 1913.

<sup>2</sup> "A Non-monetary Cause of Fluctuations in Employment" in *Economic Journal*, September 1914.

<sup>3</sup> *Les crises économiques*, Paris, 1922; 2nd ed., 1930.

<sup>4</sup> "A Suggestion for a Theory of Industrial Depressions" in *Quarterly Journal of Economics*, May 1903.

<sup>5</sup> *Beiträge zur Geldtheorie*, ed. by Hayek.

<sup>6</sup> "Business Acceleration and the Law of Demand" in *Journal of Political Economy*, March 1917. *Economics of Overhead Costs*, Chicago, U.S.A., 1923. Controversy with Ragnar Frisch in *Journal of Political Economy*, October and December 1931, April 1932. *Strategic Factors in Business Cycles*, New York, 1934, pages 33 *et seq.*

<sup>7</sup> "Relations between Capital Goods and Finished Products in the Business Cycle" in *Economic Essays in Honour of Wesley Clair Mitchell*, New York, 1935.

<sup>8</sup> *Industrial Fluctuations*, 2nd ed., 1929, Ch. IX.

<sup>9</sup> *The Trade Cycle*, Oxford, 1936, Ch. II.

<sup>10</sup> *Business Cycles*, 1913.

<sup>11</sup> *A Study of Industrial Fluctuation*, London, 1915, Part I, Ch. 2. *Banking Policy and the Price Level*, 3rd improved ed., London, 1932, Ch. 2.

<sup>12</sup> "Krisen" in *Handwörterbuch der Staatswissenschaften*, 1925.

<sup>13</sup> Compare also the critical discussion of the principle by J. Tinbergen, "Statistical Evidence on the Acceleration Principle" in *Economica*, Vol. V (New Series), May 1938, pages 164-176. Professor Tinbergen does not find much statistical evidence, but this is not surprising in view of the many qualifications which must be made (see below in the text).

<sup>14</sup> This would not seem to be a fortunate terminology, because, apart from the relation between consumption and investment which is postulated by the acceleration principle, there are relations between the two magnitudes of another kind (see below).

qualifications and amplifications; and secondly the way in which it can be used, within the framework of the over-investment theory, for the explanation of the business cycle will be examined.

### § 18. STATEMENT OF THE PRINCIPLE

Changes in demand for, and production of, finished goods and services tend to give rise to much greater changes in the demand for, and production of, those producers' goods which are used for their production. "Finished goods" need not be interpreted in the narrow sense as consumers' goods, but in a broader sense : goods at any stage are "finished" relatively to the preceding stage of production. The acceleration principle holds, not only for consumers' goods in respect to the preceding stage, but for all intermediate goods with regard to their respective preceding stages of production. Slight changes in the demand for consumers' goods may thus be converted into violent changes in demand for goods of a higher order; and, as this intensification tends to work through all stages of production, it is quite natural that fluctuations should be most violent in those stages of production which are farthest removed from the sphere of consumption. It may even happen that a slackening in the rate of growth of demand in one stage is converted into an actual decline in demand for the product of the preceding stage.

We can distinguish three cases of the working of *Demand for* the acceleration principle which, as we shall see, can *durable goods* be easily brought under a single formula.

*and commodity* (a) *Durable producers' goods*.—The intensification *stocks.* runs here from changes in demand for the finished goods (which may be durable or perishable) to changes in demand for durable producers' goods (machines, buildings, etc.) required for the production of the finished article.

(b) *Durable and semi-durable consumption goods* such as apartment-houses, automobiles, wireless apparatus, etc. Here the intensification runs from changes in demand for the service (apartments) to changes in demand for the instrument which provides the service (houses).

(c) *Commodity stocks*.—Even if there are no individually durable producers' goods (such as machines), there may be an intensification running from changes in demand for the product to changes in demand for the various goods in process, in cases where a certain stock of these various goods has to be held, the amount of which is relatively fixed in proportion to the magnitude of the output. Such necessary stocks can be regarded as durable *in toto*, although the parts which constitute the whole are perishable individually.

In order to illustrate the working of the principle,  
*Monetary aspects.* we assume a change in demand for a particular finished article—say for shoes, hats, automobiles—and investigate the influence of this change on derived demand for producers' goods in the preceding stage. Two very important questions which come at once to the mind will be discussed later, viz. : (1) Where does this first increase in demand originate—*i.e.*, is it due to a switch-over of purchasing power from other uses so that, as the demand for commodity A increases, there is a corresponding decrease in the demand for B, or does it constitute a net increase in aggregate demand out of inflationary sources? Again, (2) How is the induced change in the demand for, and production of, producers' goods financed? By an expansion of credit or by current savings? Obviously, these problems are closely connected with the problem of the place of the acceleration principle in the theory of the cycle. They will be discussed later. For the moment we shall assume that there *is* an increase in the demand for particular commodities—wherever this increase comes from—and shall endeavour to explain why the derived demand changes more violently.

#### § 19. ACCELERATION OF DERIVED DEMAND DUE TO THE EXISTENCE OF DURABLE PRODUCERS' GOODS

Take the following—static—situation. The *Preliminary statement of the principle.* value of the yearly output of (say) shoes is 100. The original and replacement cost of the fixed capital equipment—that is, of durable means of production which we shall call “machines”—required for this output is 500, 10% of which must be replaced

each year, because the machinery wears out at that rate. In other words, the lifetime of such a machine is ten years. Under this assumption, new machines at the cost of 50 must be constructed each year for replacement.<sup>1</sup> Now suppose the demand for shoes rises, so that, if it is to be satisfied, production must be increased by 10% to 110 a year. If there is no excess capacity and if methods of production are not changed, this increase necessitates an increase of 10% in the stock of fixed capital—that is, an additional production of machinery of 50, which brings the total production of machines from 50 to 100. So an increase of 10% in the demand for, and production of, finished goods necessitates an increase of 100% in the annual production of equipment. The absolute magnification of the change in demand is from 10 to 50; an increase in current production of 10 requires new investment of 50.<sup>2</sup>

But this increased volume of production of machines can be maintained only if the demand for consumers' goods goes on rising by the same annual amount of 10. If, in the second year, the increase in demand for shoes slows down to (say) 5, so that the demand for shoes in the second year is 115, the demand for machines will be 75 (50 for replacement and 25 for additional machines). Derived demand has therefore fallen absolutely in consequence of a mere decrease in the rate of increase of the demand for the finished product. Assuming replacement demand constant, derived demand for durable producers' goods changes with the rate

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<sup>1</sup> A continuous replacement presupposes, of course, that the existing capital stock has been constructed in a continuous series of instalments. If that is not the case, replacement will be also discontinuous. "Replacement waves" may ensue, if the construction of the capital stock proceeds by fits and starts.

<sup>2</sup> This statement is somewhat simplified for purposes of exposition. It is here tacitly assumed that the demand for, and supply of, the finished product jumps suddenly at the beginning of a new year to the extent of 10 per annum. Simultaneously, new machines must be available to the extent of 50, which, added to the replacement output of 50 per annum, brings the total machine output for the year to 100. It would be more realistic perhaps to suppose that the rise in demand comes about gradually and evenly in the course of the year. In this case the machine output would, as before, be 100 (*i.e.* an increase of 50 over the year before the expansion began); but the augmentation of the output of the finished product would amount only to  $10/2 = 5$ . It is further assumed that machines retain their productive efficiency unimpaired throughout their lifetime.

of change—and not with the *direction* of the absolute change of the final demand; it does not, in other words, depend on whether final demand is rising or falling in an absolute sense.

The assumption that replacement demand is constant calls for a quantitative qualification to which *Replacement demand.* Professor FRISCH<sup>1</sup> has drawn attention. If capital equipment is being continuously increased by equal amounts per unit of time, the demand for replacement must rise after a while to a new level. In our numerical example, this point would be reached after ten years, when the 50 additional machines of the first year are worn out and must be replaced. If at this point the demand for the finished product ceases to rise, the disappearance of the demand for additional machines will be compensated by the increase in replacement demand. Hence it is not quite correct to say that a decrease in the rate of increase of demand for the finished product must always lead to an actual decrease in the derived demand. It is worthy of note, however, that in each situation (under the conditions assumed) there is one, and only one, state of demand for finished goods—sometimes a rising or falling, sometimes a constant, demand—which will preserve stability in the demand for machines. The exact relationship between the various magnitudes involved could be formulated mathematically.<sup>2</sup> We shall see later that a number of restricting and modifying qualifications must be made: it seems hardly worth while therefore at this point to attempt an absolute precision which cannot in any case be maintained in applying the theorem.

One point should, however, be clearly realised: *Influence of degree of durability.* and that is the circumstance that the degree of magnification of derived demand depends *ceteris paribus* upon the durability of the machines. If we assume the service life of the machine to be twice as long—viz., twenty years—the replacement demand for a stock

<sup>1</sup> "The Inter-relation between Capital Production and Consumer Taking" in *Journal of Political Economy*, Vol. 39, October 1931, page 646. See also the subsequent discussion between Frisch and J. M. Clark in Vols. 39 and 40 of *Journal of Political Economy*. Pigou has already made sufficient allowance for this quantitative qualification in his formulation of the acceleration principle in his *Industrial Fluctuations*, Ch. IX.

<sup>2</sup> See the above-mentioned article by Frisch.

of 500 is only 25 per year. But, if an increase in demand of 10 % for the finished goods supervenes and requires an increase in the stock of equipment of 10 %, the total production of machines jumps from 25 to 75—*i.e.*, it is trebled, instead of doubled as in the previous case of a service life of ten years. To go to the other extreme : suppose the service life is zero ; that is to say, suppose that there are no durable means of production but only materials and labour. Then, in a static situation in regard to production, there being no permanent stocks, the whole supply of materials must at once be replaced. If the output of the finished article (shoes) is 100, and the material (leather) used for this is 50, the whole amount must be replaced. If the demand for shoes then rises by 10 % to 110, the production of leather must rise also by 10 % to 55. There is no magnification at all.

The qualifications of the principle which are implicit in our assumptions should be kept in mind. The existence of unused capacity is excluded, and a fixed relationship between output and capital equipment is assumed. These and other qualifications have their counterpart in the other two cases set forth in § 20 and § 21 below, and will be discussed in connection with the combined statement of all three cases.

#### § 20. ACCELERATION OF DERIVED DEMAND IN THE CASE OF DURABLE CONSUMPTION GOODS

The case of durable consumption goods is perhaps  
*Analogy* the most important of the three. As an example,  
*with previous* take apartment-houses. The situation is exactly  
*case.* analogous to the case of the production of shoes  
 analysed in § 19. We have only to substitute  
 “annual service of the house” for “annual production of shoes”,  
 and “apartment-houses” for “machines used for the production  
 of shoes”. In other words, we can conceive of the durable  
 consumption goods as producing a stream of services.

We start again from a static situation. The annual production of the service (housing accommodation as measured, say, by apartment rent) is 100. The stock of durable goods—that is, of houses—from which this stream of services originates is (say) 1,000,



of which 100 (10%) must be replaced each year, corresponding to a durability of ten years. If there is an increase in the demand for apartments of 10%, the number of houses, or rather the amount of dwelling-space, must also be increased by 10%—which means a doubling of the construction of new houses, 100 for replacement and 100 as addition to the existing stock. Thus, an addition to the annual flow of services of 10 necessitates an investment of 100.

The further analysis is exactly the same as in the case of the shoes. The case of less durable goods such as motor-cars may also be analysed in the same way by distinguishing between the flow of services and the durable instrument whose value is a multiple of the value of its annual service. (There is, of course, this important institutional difference that, in the case of dwelling-houses, the ownership of the instrument is usually or frequently divorced from the use of the services, while the consumer of the services of an automobile is, as a rule, the owner of the instrument. The technological principle is not altered by this circumstance; but it has other consequences which will be discussed later.)

One important quantitative peculiarity of certain *Depreciation* types of durable consumers' goods may be pointed *and running* out at this point. The cost of the final service *cost.* (annual rent of an apartment) consists of two parts—viz., the contribution of the durable instrument and the running expenses (heating, water, maintenance, etc.). If demand for the service rises, the acceleration principle becomes effective in respect of the first part. The quantitative effect—that is, the absolute magnification of derived demand—depends, other things (especially the durability of the instrument) being equal, upon the relative importance of the two parts. In the case of the dwelling-space, the contribution of the durable instrument (the house) is probably relatively large, say four-fifths of the cost of the total output. In our example of the shoe factory, we assumed that the total output was 100, of which only one half consisted of the contribution of the durable instruments, the other half consisting of materials and labour. Under these assumptions, other things being equal, the absolute magnification of derived demand is much greater in the case of an increase in the demand for apartments than in the case of an equal increase in the demand for shoes.

If the demand for shoes rises from 100 to 110, the demand for machines rises from 50 to 100. If the demand for apartments rises from 100 to 110, the demand for houses rises from 80 to 160.

§ 21. ACCELERATION OF DERIVED DEMAND  
AS A RESULT OF THE EXISTENCE OF PERMANENT STOCKS OF GOODS

Even if there are no durable means of production, *Analogy with previous cases.* there may be a certain magnification of derived demand, if distributors and producers hold stocks in a fixed (or relatively fixed) proportion to the rate of sales or production. The assumption that the stock bears a fixed proportion to the rate of sales or to output is the counterpart of the assumption that there is a fixed relationship between output and machines.

Let us start again with a static situation, say, with a monthly sale of 100,000 pairs of shoes. Suppose that dealers usually hold permanent stocks equal in magnitude to the sales of one month and that demand and sales rise to 110,000 and the increase is believed to be lasting. Dealers will then increase their orders with producers by more than their sales have gone up in order to bring their stocks up to the usual ratio to sales. They will order 120,000 pairs; but the larger orders will be maintained only if sales go on rising. If the increase in sales ceases at the end of one month, even though there is no decrease, stocks will no longer be augmented and orders for producers will fall to 110,000 (although not to the original level of 100,000).

The principle works, however, in the other direction as well. If the demand for shoes falls off, dealers will reduce stocks and their orders will therefore fall by more than the amount by which their sales have decreased. Derived demand fluctuates more violently.

Although from the formal mathematical point of view the parallelism between the case of stocks and *Some qualifications.* the case of fixed capital is complete, the case of the stocks presents some quantitative peculiarities, the consequence of which is to imply much more drastic qualifications and reservations in the application of the principle. (1) The assumption of a comparatively fixed relationship between sales

and stocks is much more precarious, and subject to more serious and frequent exceptions, than the corresponding assumption as to the fixity of the ratio between output and capital equipment. Stocks can be easily diminished or increased: they can be consumed rapidly, and are therefore subject to speculative changes. (2) The durability is smaller than in the case of fixed equipment. Hence replacement demand responds much more rapidly to an increase in output and sales in the case of stocks than in the case of machines. If new machinery with a service life of ten years is installed, its installation does not affect replacement demand until after ten years. If sales go up and stocks are increased correspondingly, replacement demand rises in the succeeding period.

For these reasons, the stocks factor is less likely to exhibit clearly the acceleration of derived demand than the fixed capital factor.

#### § 22. GENERALISED STATEMENT OF THE PRINCIPLE

In all three cases which have been distinguished, the relevant circumstance is that, in order to increase the rate of output, it is usually necessary to make heavy immediate investments in the shape of stocks or—what is in practice much more important—in fixed capital, the fruits of which investments mature only in the more or less distant future.

The same thing can be put in another way. The durability of instruments makes it necessary to provide all at once for future demand over a considerable period. The supply required to satisfy the demand for any given period to come must be produced immediately and stored up in the shape of stocks and durable instruments.

If we assume that there is a periodic up-and-down movement in the demand for a finished article as represented by a sine curve, the movement in the requirements for the capital equipment has to be represented by a steeper curve of the same type. This derived curve, which represents the effect, will usually show a lead *vis-à-vis* its cause. It will reach the high points and low points *before* the causal curve. This is a rather paradoxical situation, because one would expect the cause to precede the effect and not the effect the cause. But the dominant factor is, with certain qualifications which have been made above (§ 19), not the *direction* of the change (the

mere fact that demand for the finished product is rising or falling absolutely), but the *rate* of change, or changes in the rate of change, in the demand for the finished product.

### § 23. QUALIFICATIONS

*Limited application in negative sense.* We spoke of changes in "the requirements for capital equipment". If we want to substitute for this "demand" for, or "production" of, capital goods, we must consider that demand and production cannot become negative.<sup>1</sup> As soon as the production of capital goods falls to zero—the demand for the finished product continuing to decline—excess capacity will develop; and, when demand for the finished product rises again, the production of capital goods will not be resumed until after the accumulated surplus has been absorbed. So long as there is unused capacity (or dealers are overstocked),<sup>2</sup> the acceleration principle of derived demand will not come into play.

*Variable proportions of factors.* Excess capacity has been excluded by the assumption that there is a constant ratio between rate of output on the one hand and capital equipment and stocks on the other. In reality, this ratio is not constant, even apart from inventions and improvements in the technique of production which allow an increase in output per unit of capital equipment. Existing capital equipment

<sup>1</sup> This point has been well put by Professor J. Tinbergen. In the article mentioned on page 87, he says :

"In its more rigorous form, the acceleration principle can only be true if the following conditions are fulfilled.

"(a) Very strong decreases in consumers' goods production must not occur. If the principle were right, they would lead to a corresponding disinvestment and this can only take place to the extent of replacement. If annual replacement amounts to 10% of the stock of capital goods, then a larger decrease in this stock than 10% per annum is impossible. A decrease in consumers' goods production of 15% could not lead to a 15% decrease in physical capital as the acceleration principle would require. It is interesting that this limit is the sharper the greater the duration of life of the capital goods considered."

<sup>2</sup> The term "unused capacity" must be interpreted with great care. There is always some inferior capacity which can handle an increase of demand.

may be utilised more or less intensively. Overtime can be worked or more hands can be engaged. Nor is this all. If demand for the product rises and new machinery has to be installed, the durability of the new equipment may be different. Whether more or less durable machines are employed, whether more or less fixed capital is combined with a given amount of labour and circulating capital, depends among many other things on the rate of interest and the rate of wages and on the general outlook, that is the expectations entertained by producers about the future development of wages, interest and other cost items on the one hand and the future state of demand on the other.

This raises very fundamental questions, and it might be well to reflect once more on the essential nature of the principle.

In its more rigorous form, it postulates a certain quantitative relationship between the production of finished goods and that of their means of production. In a less ambitious form, taking all qualifications into consideration, it simply says that an increase in demand for, and production of, consumers' goods tends to stimulate investment and that a fall in the former tends to affect the latter adversely.

In this less ambitious sense, its validity can hardly be doubted. It should, however, be noted that *Various interrelations between consumption and investment* this does not preclude the possibility of (a) there being causal connections between the production of consumers' goods and investment of a different sort than the one postulated by our principle and even operating in the opposite direction in certain cases,<sup>1</sup> and (b) the production of capital goods (investment) being influenced, not only by changes in the demand for consumers' goods, but by other factors as well. It may perhaps be said that any investment, directly or indirectly, is looking forward to, and is made in the expectation of, a future demand for consumers' goods. But, as Professor HANSEN has pointed out,<sup>2</sup> there are

<sup>1</sup> Compare e.g., § 4 of this chapter, page 45 above.

<sup>2</sup> See his criticism of Harrod's rather unqualified utilisation of the acceleration principle in *The Quarterly Journal of Economics*, Vol. 51, May 1937, pages 509 *et seq.* (now reprinted in *Full Recovery or Stagnation*, New York, 1938).

types of investment which look forward for their utilisation to a very distant future—*e.g.*, the opening up of a new region by the construction of a railroad. In such cases, the connection between the investment and the present state and recent movement of the demand for consumers' goods is very slender. Long-run expectations determine investment decisions of this sort, and the influence of the current output of finished goods on these expectations can hardly be assumed to follow a uniformly defined quantitative pattern.<sup>1</sup>

Besides these adventurous kinds of investments, there are other investments, in working and fixed capital, which follow more or less closely the ups and downs of consumers' demand—routine investments one might call them. It is with these that the acceleration principle in its more rigorous form is concerned.

§ 24. THE CONTRIBUTION OF THE PRINCIPLE OF DERIVED DEMAND  
TO THE EXPLANATION OF THE GENERAL BUSINESS CYCLE

It has sometimes been assumed that, in order to  
*Reciprocal* utilise the acceleration principle for the explanation  
*action* of the general business cycle, one has to presuppose  
*of consumers'* a cyclical alternation of expansion and contraction  
*demand* in consumers' demand.<sup>2</sup> The acceleration principle  
*and capital* then serves to explain the larger fluctuations in the  
*production.* capital-goods industries. The situation is, however,  
much more involved, because consumers' demand  
and capital production (investment) interact on one another.

In order to throw light on this inter-relation, the two questions which have been raised above and reserved for later discussion must now be dealt with.

<sup>1</sup> This has also been well put by Professor D. H. Robertson. "... Some of the principal forms of investment in the modern world—the instruments of power-production, of transport, of office activity—are, after all, very loosely geared to the visible demand for particular types of consumption goods and depend rather on fairly vague estimates of the future progress of whole areas and populations. (See his review of Harrod's *The Trade Cycle* in *The Canadian Journal of Economics and Political Science*, Vol. III, 1937, page 126.)

<sup>2</sup> Criticism by C. O. Hardy before the American Statistical Association, December 1931. Quoted by J. M. Clark in *Journal of Political Economy*, October 1932, page 693.

Where does the increase in the demand for the *Nature of the* finished product come from? Two cases have to be distinguished, viz. : (a) the case of a net *initial* increase in aggregate demand due to a monetary *impulse*. change, an increase in the quantity of money, dishoarding or an increase in the velocity of circulation; and (b) the case of a mere shift in demand from one commodity or group of commodities to another.

Ad (a). If an (inflationary) increase in the aggregate demand for finished goods in terms of money takes place, the acceleration principle is sufficient explanation of the marked stimulation experienced in the higher stages of production. Demand for capital goods rises, and this involves a rise in demand for bank credit. The profit rate rises, and our principle reveals an important factor which makes for progressive expansion and adds to the cumulative force of the upswing.

Ad (b). The situation is rather different where there has been no rise in aggregate income, but only a shift in demand from commodity A to commodity B. Demand for capital goods derived from A falls, demand derived from B rises. Do not these two changes cancel each other out, so that, on balance, activities in industries producing producers' goods will not be stimulated? The answer is that they may cancel out, but that there is not only no necessity for them to do so but even a probability against it. It is likely that in many cases a net increase in demand for producers' goods will result.

The outcome will mainly depend on three circumstances : first, on the relative importance and *Factors* durability of fixed capital in the production of A *affecting* and B; secondly, on the existence or non-existence *the outcome.* of unused capacity and on the relative magnitude of the same in the two industries; thirdly, on whether and to what extent the machinery used for the production of A can also be used for the production of B.

If, in the production of B (say automobiles), the demand for which has risen, fixed capital plays a more important rôle, and a more durable equipment is needed than in the production of A (say textiles) where demand has fallen, then this shift in demand

for finished goods will induce a considerable increase in the demand for capital goods.

But, even if the proportion of fixed to working capital and the durability of the former is the same for A and B, it is quite possible that the shift in demand from A to B will create a net increase in demand for fixed capital (provided the machinery producing A is such that it cannot be used for the production of B). The principle of acceleration of derived demand works in both directions, as we know. But, in the downward direction, its operation is limited by the fact that production cannot fall below zero. If, therefore, in the case of a shift of demand from A to B, the demand for machinery producing A falls to zero, this loss may very well be more than compensated by an increase in the demand for new equipment producing B.<sup>1</sup>

The net result of a shift in the demand for finished products on the demand for capital goods will be lessened, if machinery producing A can be used without alteration, or with only slight alterations, for the production of B. It is very likely that, in some higher stage, the two streams of production, traced backward from A and B, coincide. The steel industry, for example, is common to a number of industries besides A and B—*e.g.*, railway construction and the building industry. Obviously, it makes a great difference whether the production processes of A and B coincide in (say) the second, or only in the fifth, stage of production. If the two commodities A and B are far removed from one another in the sphere of production, only a small part of the fixed capital devoted to the production of A can be used for the production of B; and so in the event of a shift of demand from A to B, any increase in the demand for new equipment and for the materials needed to construct it will be comparatively strong.

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<sup>1</sup> It follows that the expansionary effect of a shift in the demand is more likely to be great if it occurs during a period when the demand for equipment in both industries is at a relatively low level. If it takes place while a general expansion is in progress, the acceleration principle has free play to operate in both directions and the effects on industry A and B are therefore more likely to compensate each other.



Two alternatives are open for discussion. The *Method of financing the new investment.* new investments can be financed (a) by means of current savings or (b) by way of inflation through the creation of new bank credit and/or more intensive utilisation of existing means of payment. In other words, the increased investment may or may not be consistent with the maintenance of the stability of the monetary circulation—i.e., of *MV*.

Ad (a). Suppose that, with the working of the acceleration principle, a shift or an increase in the aggregate demand for finished goods affords new investment opportunities, but that the supply of capital in terms of money is not increased by way of inflation. There is no elastic credit supply, and no hoards of any sort which producers can draw on. The consequence will be a rise in the rate of interest. This will produce a retrenchment of investment—of reinvestment or new investment, as the case may be—in different branches of industry, offsetting the increased investment in industries in which the demand for the finished product has risen. The *aggregate* demand for producers' goods cannot therefore rise.

Ad (b). It is of course recognised by the leading exponent of the acceleration principle, Professor J. M. CLARK, that the principle cannot serve as an explanation of the business cycle, nor even as an incomplete and partial explanation, except in conjunction with an elastic credit supply. Unless it entails a credit expansion, an increase in investment in particular branches of industry cannot produce a general up-turn in business activity. If there has been an increase in the circulating medium, income and demand for finished goods will rise; this will further stimulate investment, and so a cumulative process of expansion will be started.

The acceleration principle is thus assimilated by the over-investment theory, and adds an important feature to the picture of the cycle as drawn in the preceding sections.

Closer analysis reveals further points of connection between the acceleration principle and the *Further considerations.* over-investment theory.

The fact that durable instruments are required in order to satisfy current demand for finished goods or services may be characterised, in the terminology of the monetary over-

investment theory, as an incentive to the initiation of roundabout methods of production. The more durable the instrument, the longer the roundabout methods of production.

It has been mentioned already that the durability of the instruments, and the amount invested in them in response to an increase in demand for a finished product, cannot be taken as economic constants, determined solely and rigidly by the state of technological knowledge. As a rule, there are various methods of production to choose between; and more or less durable equipment can be installed, the more durable varieties being more costly. (Less durable instruments which cost as much as their more durable rivals are, of course, ruled out as uneconomical from the beginning.) The choice between these depends mainly on the rate of interest. The lower the rate the more durable the instrument and the longer the roundabout process of production. There is, furthermore, the risk factor. In an atmosphere of optimism and confidence, people will be more inclined to undertake heavy investments than in a state of uncertainty and fear. Also the rapidity of replacement of existing equipment, and therefore the length of its service life, will be influenced by these factors.

The production of durable consumers' goods may give rise to credit expansion no less than the production of durable producers' goods. If demand for apartments rises, the construction of houses may be undertaken with the help of inflationary bank credit. In the case of semi-durable goods, such as automobiles, where it is usually the instrument (and not only the service) that is bought by the last consumer out of his income, an instalment purchase scheme may enable consumers to extend their current purchases beyond their current income. Thus a slight increase in the income which allows its recipient to increase current consumption may bring about a much larger increase in demand in general.

Naturally, not only an *actual*, but also an *anticipated*, increase in demand for a finished product may bring about an increase in investment many times as large as the expected annual increase in demand for the finished product.

All these considerations bring out the importance of the rôle played by the acceleration principle in the mechanism of expansion as described by over-investment theorists.

After the upward movement has been started, the acceleration principle explains the rapid absorption of unused factors of production in the upper stages of production. Naturally, the principle cannot work unobstructed after all the factors, or particular types of the factors, of production have become fully employed. But these questions have been discussed above in connection with the monetary over-investment school.

The nature of the cumulative process of expansion  
*Causes of the breakdown.* having been thus explained, there remain various possibilities of explaining the collapse of the boom. One explanation is that sooner or later a shortage of capital in the previously defined sense arises.

It has been pointed out above that a decrease in the rate of increase of demand for a finished product (say railway lines) need not entail an actual decrease in demand for, and production of, producers' goods (say steel). It is possible that the decrease in new demand will be compensated by an increase in replacement demand. If the construction of new railway lines decreases only after a long period, the steel industry need not experience any decline at all. Whether this condition can be fulfilled depends to a large extent (but not wholly) on the availability of capital. If a shortage of capital develops, railway construction must be curtailed and the steel industry will suffer a decline in demand. We observe here again a close interrelation between the over-investment theory and the acceleration principle.

But shortage of capital is not the only conceivable explanation of the breakdown. Professor AFTALION, who is amongst the exponents of the acceleration principle, has put forward the theory that the turning-point comes, not because the new investments cannot be completed owing to a shortage of capital, but, on the contrary, after the new roundabout processes of production (construction of durable instruments) have been completed and begin to pour out consumers' goods. Prices fall; consumers' goods industries become depressed; and this depression is transmitted with increasing violence to the higher stages of production.

This line of thought will be discussed again in connection with under-consumption theories.

A somewhat different standpoint in this matter is taken up by Professor RÖPKE, who has recently laid great stress on the acceleration principle as affording an explanation of why a serious breakdown is unavoidable after a period of rapid expansion.<sup>1</sup> His analysis of the rôle of the acceleration principle in the mechanism of expansion is the same as that which is given above. He does not, however, explain the ensuing breakdown by the emergence of capital shortage or of an insufficiency of consumers' demand : nor does he believe that the breakdown can be avoided by more saving (as the capital shortage theorists do) or by more spending (as the under-consumption theorists do). He believes that, owing to the operation of the acceleration principle, a situation in the structure of production is bound to develop which can under no circumstances be maintained—either by less saving on the part of the public or by more—so that a serious breakdown is inescapable. According to him, this type of maladjustment is unavoidable after a period of rapid capital accumulation, even in a planned socialist economy of the Russian type.

But how, it may be asked, does he describe this maladjustment from which there is no escape except through a more or less severe crisis? "It is the steep rise of the absolute amount of investments which matters, not the fact that our economic system must rely on credit expansion to make this rise possible."<sup>2</sup> And again : "The scale of investment grows, and so long as the rate at which it grows remains constant, or even increases, the boom has the power to last. Eventually, however, the moment must come when investment is not suddenly broken off certainly, but ceases to grow at the previous rate. We cannot always be building and 'rationalising' further, always constructing new electricity works, etc.—especially as the power of the credit system to go on continually financing this investment delirium is finally exhausted. At this point, the boom must come

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<sup>1</sup> *Crises and Cycles* (1936), pages 102 *et seq.* See also his article "Socialism, Planning and the Business Cycle" in *Journal of Political Economy*, Vol. 44, June 1936. A similar analysis is to be found in R. G. Harrod, *The Trade Cycle*, Oxford (1936), page 165 and *passim*.

<sup>2</sup> *Crises and Cycles*, page 110.

to an end, since the shrinkage of the capital goods industries is unavoidable.”<sup>1</sup>

These quotations do not make the situation envisaged by our author perfectly clear;<sup>2</sup> but it is the nearest we can get to his meaning. In the second part of this book (see § 5 of Chapter 11) it is proposed to work out a situation which perhaps covers what Professor RÖPKE really has in mind.

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<sup>1</sup> *Crises and Cycles*, page 102.

<sup>2</sup> It is not clear whether he has visualised the theoretical possibility of replacement demand's stepping into the shoes of new investment in such wise as to bring about a smooth transition to a stationary equilibrium.

## CHAPTER 4

CHANGES IN COST, HORIZONTAL MALADJUSTMENTS  
AND OVER-INDEBTEDNESS AS CAUSES OF CRISES  
AND DEPRESSIONS

## § 1. INTRODUCTION

In this chapter we shall discuss certain factors which have sometimes been put forward as *the* causes of the periodic recurrence of crises and depressions. The argument, however, goes too far. It is not in this case a question of elaborate theories embodying a full explanation of the business cycle comparable to the monetary explanation or the over-investment theory, but of certain particular factors which contribute something to the explanation of certain phases of the cycle. To recognise that these factors may sometimes, or frequently, play a rôle in shaping the course of the cycle is by no means incompatible with acceptance of the monetary or over-investment theory of the cycle, though of course all members of these two schools would not attribute much importance to the factors in question.

§ 2. CHANGES IN COST OF PRODUCTION AND EFFICIENCY  
OF LABOUR AND PLANT

In a competitive business economy, the statement that a restriction in industrial activity is due to the fact that production cost has risen above selling price does not add much to the mere statement that industrial activity has been reduced—at any rate, if “price” is interpreted (as it obviously should be) as the expected future price and “cost” as marginal cost at the expected volume of activity. This statement is compatible with any explanation of the crisis

and depression. Whether a series of crop failures, over-investment, monetary deflation, under-consumption or anything else is ultimately responsible for the breakdown of the boom and for the depression, the proximate cause of the reduction in industrial output is the fact that expected prices do not cover production cost. All these factors must finally find their expression somewhere in a disappearance of the profit margin. (There are other formulæ which are as vague and unhelpful as the cost-of-production formula—*e.g.*, the assertion that the breakdown is due to the fact that demand has fallen short of supply, to a disequilibrium between production and consumption, or to over-production in certain lines of industry and so on.)<sup>1</sup>

The rise of production cost during the prosperity  
*Mitchell on* phase and the reduction of production cost during  
*the cyclical* the depression play a prominent rôle in the explana-  
*movements of* tion of the cycle by Professor W. C. MITCHELL.  
*production* The following is his description of the process :  
*cost.* “The decline in overhead cost per unit of output

(which was brought about by the first increase in production after the trough of the depression) ceases when enterprises have once secured all the business they can handle with their standard equipment, and a slow increase of these costs begins when the expiration of the old contracts makes necessary renewals at the high rates of interest, rent and salaries which prevail in prosperity. Meanwhile, the operating costs rise at a relatively rapid rate. Equipment which is antiquated and plants which are ill located or otherwise work at some disadvantage are again brought into operation. The price of labour rises, not only because the standard rates of wages go up, but also because of the prevalence of higher pay for overtime. Still more serious is the fact that the efficiency of labour declines, because overtime brings weariness, because of the employment of ‘undesirables’, and because crews cannot be driven at top speed when jobs are more numerous than men to fill them. The prices of raw materials continue to rise faster, on the average, than the selling prices of products. Finally, the numerous small wastes

<sup>1</sup> Compare L. Robbins, *The Great Depression* (1934), Chapter II.

incident to the conduct of business enterprises creep up when managers are hurried by a press of orders demanding prompt delivery.”<sup>1</sup>

A corresponding process of cost reduction is going on during the depression and prepares the ground for a revival.

In the passage quoted, the operation of a number *Elements* of factors is very luminously described. But, *contained in* analytically, the various forces making for higher *other theories*. unit cost, partly in real terms, partly only in terms of money, are very different in nature.

That cost of production in terms of labour rises because inefficient workers and undesirables must be employed and because antiquated equipment must be brought into operation when production is expanded is quite natural. This is simply a way of expressing the law of decreasing returns. The supply price rises, and this “obviously limits the extent to which production expands in response to a given rise in demand; and, since the whole process takes time, it is natural that we should find expansion carried forward continuously up to a point, and then stopped”.<sup>2</sup> This does not, however, explain why expansion is followed by a breakdown and depression.

That money wages rise during the upswing (and fall during the downswing) has been shown in connection with the theories reviewed earlier in this book. This rise (and fall) in wages is a consequence of credit expansion (and contraction). It does not explain anything, unless it is possible to show why efficiency wages must rise, or are likely to rise (or fall) more (or less) rapidly than prices—that is to say, if a time-lag can be established between the movement of wages and prices.

The rise in interest rates is, as the monetary over-investment theory has shown, a symptom of a vertical maladjustment in the structure of production. It works out in an increase in money costs, but affects the higher stages of production more severely. As a link in the analysis of the over-investment theory or a purely

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<sup>1</sup> See “Business Cycles” in *Business Cycles and Unemployment*, New York, 1923, pages 10 and 11. A similar description is to be found in other writings by Mitchell on the subject.

<sup>2</sup> Pigou, *Industrial Fluctuations*, 2nd ed., London, 1929, page 228.



monetary theory *à la* HAWTREY which explains the breakdown by an act of hoarding or credit-restriction, the rise in interest rates adds something to the explanation of the business cycle; but it is not very helpful if regarded only as contributing to the increase of the money cost of production.

A new point, not so far mentioned in our analysis, *Movements in efficiency* is the argument that efficiency tends to fall during the upswing, because waste crops up everywhere (and efficiency tends to increase during the downswing because of the elimination of waste). Since money wages generally rise during the upswing (and fall during the downswing), this is equivalent to saying that efficiency wages rise faster than money wages during the upswing (and fall faster during the downswing). This is probably a factor which affects all branches and all stages of production alike; or, if it does not, the differences are due to accidental circumstances, and there is no tendency for higher and lower stages—*i.e.*, the production of durable capital goods and of perishable consumers' goods—to be affected in a different degree.

This tendency of efficiency wages to rise during the upswing—the reader will easily make the necessary adjustments for the application of the argument to the downswing—is surely a factor which must unfavourably affect the whole situation. Other things being equal, the breakdown would at least be postponed if this lowering of efficiency could be avoided. But the avoidance of waste and the maintenance of the level of efficiency attained during the depression would not in themselves mean the avoidance of vertical and horizontal maladjustments in the structure of production. If, on the other hand, there is no horizontal or vertical misdirection of investments, the influence of an all-round lowering of efficiency may be compensated by an increase in prices or a reduction of money wages.

It cannot, however, be denied that, theoretically, a heavy fall in efficiency, unaccompanied by a corresponding fall in money wages and not compensated by a rise in prices, may produce a general depression.

The same effect may perhaps be brought about by a rise in money wages, induced from the supply side, unaccompanied by a rise in

efficiency or a general increase of prices. There are reasons to believe that something of this sort happens during the later phase of the upswing of an ordinary business cycle. The decrease in efficiency alone, on the other hand, is probably not of the same order of magnitude as the rise in general prices.

But this involves a quantitative estimate and calls for statistical investigation; and it is not easy to find a statistical measure for the changes in the efficiency of labour. The well-established fact that, in a number of industries, output per head of the employed labourers rises sharply during the depression and falls during the upswing of the cycle is not a sufficient proof, because it may be entirely due to the fact that antiquated plants, etc., are put into operation during the upswing and are closed down during the downswing, and that less efficient workers are engaged during the upswing and discharged during the downswing. In technical parlance, the change of efficiency which we have in mind must be represented by a shift of the productivity curve, while the statistically observed changes in the output per head of the labour employed may be due—and to a certain but unknown degree undoubtedly are due—to a movement along the curve.

### § 3. HORIZONTAL MALADJUSTMENTS

The distinction between “horizontal” and “vertical” maladjustments in the structure of production was explained above. We have seen that, according to the over-investment theory, a vertical maladjustment is normally the cause of the collapse of the boom; and the exponents of the monetary form of the over-investment theory especially seek to show that such a vertical maladjustment (of which the outstanding symptom is capital shortage and a sharp rise in the interest rate) does not arise by pure chance, but develops as the natural and necessary consequence of the inflationary forces which are at work during the upswing, falsifying certain essential price relationships by distorting the rate of interest.

Even if one accepts this theory as fundamentally correct, it does not follow that horizontal maladjustments are not equally

likely to arise, or in certain cases to be responsible for the breakdown.

It is true, a horizontal maladjustment alone (that is to say, an over-development of a particular branch of industry) can explain only a partial—as opposed to a general—depression for the reason that, if industry A is over-developed, there must be an industry B which is under-developed and, if A is depressed, B must prosper. But the same is true, as we have seen, of a vertical maldistribution of the factors of production.

In order to explain a *general* depression, it is necessary to recognise that a deflationary cumulative process can be set in motion by partial dislocation of the productive process. If this is accepted, there is no difficulty in assuming that such a vicious spiral of contraction may be started by a horizontal, as well as by a vertical, maladjustment in the structure of production.

Such horizontal maladjustments can be brought  
*“Error theories.”* about by a great number of circumstances which may be classified as (1) shifts in demand and (2) shifts in supply.

It is here that the “error theories” of the business cycle, or rather of the crisis, have their proper place. These theories stress the great complexity of our economic system, the lack of knowledge, the difficulties in foreseeing correctly the future demand for various products. One producer does not know what the other is doing. A given demand cannot be satisfied by producer A : producers B, C, D, etc., are accordingly called upon to satisfy it, and this creates an exaggerated impression of its volume and urgency. This leads to competitive duplication of plant and equipment, involving errors in the estimation of future wants. The circumstances conducive to bringing about such mistakes have been most fully described and analysed by Professors F. W. TAUSSIG,<sup>1</sup> A. C. PIGOU,<sup>2</sup> Sir WILLIAM BEVERIDGE<sup>3</sup> and T. W. MITCHELL.<sup>4</sup>

<sup>1</sup> *Principles of Economics*, 3rd ed., 1925, Vol. I, pages 338 *et seq.*

<sup>2</sup> *Industrial Fluctuations*, Chapter VI (“The Structure of Modern Industry and Opportunities for Errors of Forecast”).

<sup>3</sup> *Unemployment*, new ed., London, 1930.

<sup>4</sup> “Competitive Illusion as a Cause of Business Cycles” in *Quarterly Journal of Economics*, Vol. 38, August 1924, pages 631 *et seq.*

Clearly, mistakes which lead to a misdirection of productive resources can be made at any time. But there are good reasons for the view that they are specially likely to arise during the upswing. The prosperity phase of the cycle is characterised by heavy investments for the reason that, in many lines of industry, provisions are made for satisfying future needs of the ultimate consumer as well as of producers in the intermediate stages of production. Evidently, the longer ahead demand has to be estimated the greater the risk of serious errors. If the estimate has to be made in a period of rapid changes in the economic system in general, and if new methods of production and the production of new types of goods are involved, the risk becomes still greater. Indivisibility and durability of instruments and the complicated relation between changes in the demand for finished goods and the demand for durable producers' goods (as postulated by the acceleration principle) combine to make a smooth adjustment of cost and supply to changes in demand extremely difficult.

The border-line between horizontal and vertical "Horizontal" maladjustments is sometimes very difficult to draw. *and* But since the two are not mutually exclusive, since "vertical" they can, and probably frequently do, coexist and *maladjustments.* reinforce one another, the fact that classification is sometimes difficult in concrete cases does not weigh too heavily in the balance.

To illustrate the close relationship between horizontal and vertical maladjustment, take again the case where a demand for a capital good (say constructional steel) drops violently as a result of a decrease or cessation of growth of demand for the product (say houses or motor-cars). It has been argued (as already stated)<sup>1</sup> that this is in reality the consequence of a shortage of capital—in other words, of a *vertical* maladjustment in the structure of production—and that, if the necessary capital were forthcoming, the building activity and motor-car production could continue until the replacement demand for houses and cars was such that the steel mills could use their whole capacity to satisfy it.

This may be so : but it is just as possible, and a good deal more probable, that the decrease in demand for new houses and motor-

<sup>1</sup> By Professor Hayek.

cars is due to the demand situation—*i.e.*, that the demand for houses and cars has been well satisfied for the time being relatively to other needs, and that savings are therefore invested in other directions, where no steel, or not so much steel, is needed. In this case, we have a *horizontal* maladjustment in the structure of production. So far as the deterioration of the steel industry and the repercussion which this might have on tributary industries and on the volume of the circulating medium are concerned, the consequences of a horizontal and a vertical maladjustment are exactly the same.

#### § 4. OVER-INDEBTEDNESS

Professor IRVING FISHER<sup>1</sup> thinks that there are *Introductory*. two main causes of the recurrence of economic depressions, namely “over-indebtedness” and “deflation”. These two factors, he thinks, tend to produce and to reinforce one another. Deflation swells the burden of debts, and over-indebtedness leads to debt liquidation, which engenders a shrinkage of the money stream and a fall in prices.

Professor FISHER's debt-deflation theory is embedded in a general view about the trade cycle which sounds *prima facie* somewhat strange. He likes to call “*the*” business cycle a myth. But a closer examination shows that he deprecates only the use of the term “cycle” in the sense of a strictly periodic and regular movement. He stresses the differences in the appearance, amplitude and length of the various “cycles”—that is, in the alternations of good and bad years—which we find in the economic history of the last hundred years. He admits and even emphasises the fact that the economic system is liable to deteriorate in a cumulative process—that there is a vicious spiral of contraction and another vicious spiral of expansion. But how far expansion or contraction goes depends (he maintains) on innumerable circumstances, which differ from case to case.

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<sup>1</sup> Cf. his article “The Debt-deflation Theory of Great Depressions” in *Econometrica*, Vol. 1, No. 4, October 1933, pages 337 *et seq.*, and his book *Booms and Depressions*, London, 1933.

This difficulty cleared away, it is comparatively easy to determine the place of the debt-deflation theory in our system of explanations of the cycle, and to distinguish those elements which add something new from those which have been already discussed in connection with other theories.

The description of the vicious spiral downward, which comes into play after the depression has once been started, is substantially the same as we found it in the writings of the monetary and over-investment schools. A fall in demand leads to a fall in prices, to the disappearance of the profit margin, to a reduction in production, to a decrease in the velocity of money, and so to a contraction of credit, a further drop in demand, pessimism, hoarding, etc.

What, then, is the rôle of debts and over-indebtedness? They influence the course of the cycle in two respects. In the first place, the existence of large debts expressed in terms of money tends to intensify the deflation, and in the second place a state of over-indebtedness may be the cause which precipitates the crisis. Professor FISHER does not distinguish the two cases in these words, but the distinction is clearly implied by his analysis.

1. The existence of large debts in terms of money  
*Debts* is certainly a most potent factor (although not the  
*intensify* only factor) tending to aggravate the depression.  
*deflation.* The burden of debts becomes heavier with the fall  
in prices; and this leads to distress selling, which  
depresses prices further. Thus, directly and indirectly, a liquidation of bank credits is induced, which means a shrinkage in the volume of the circulating medium and of the demand for goods in general.

It would seem that the intensifying influence of money debts on the contraction process is an important corollary of the theory of the deflation as elaborated by the writers previously reviewed. Deflation would cause depression and the process of contraction would be cumulative, even if (as it is conceivable) the upswing were financed by shares and not by bonds, and by the producers' own capital instead of by borrowed money; but the depression would be milder if the amount of debts was smaller. (To this problem we shall return presently.)

2. A much more precarious proposition is that *Over-indebted-* which regards the state of "over-indebtedness" *ness may* as the normal cause of the collapse of the boom *cause the* What is meant by over-indebtedness? "Over- *downturn.* indebtedness means simply that debts are out-of-line, are too big relatively to other economic factors."

How is over-indebtedness brought about? "It may be started by many causes, of which the most common appears to be *new opportunities to invest at a big prospective profit*, . . . such as through new inventions, new industries, development of new resources, opening of new lands or new markets. Easy money is the great cause of over-borrowing."<sup>2</sup>

It seems clear that in these cases over-indebtedness is closely connected with over-investment. To say that the cause of the breakdown is over-investment is the same thing as saying that investments have been made which later turn out to be unprofitable: that is, in other words, sales proceeds do not cover cost, and one important cost item is interest on fixed and working capital. The over-investment theory tries to show why this is the necessary consequence of any inflationary boom, and how entrepreneurs are lured into too heavy investments. Professor Irving FISHER, on the other hand, stresses the fact that these over-investments have been made with borrowed money. But clearly over-investment, rather than over-indebtedness, is the primary cause of the breakdown. If the investments are excessive (in the sense that the structure of production is not in equilibrium), then these enterprises will suffer losses, whether they are financed with shares or with bonds, with borrowed capital or with the entrepreneur's own capital. Further investment will be stopped and deflation is likely to ensue. If, on the other hand, the structure of production is in equilibrium, there is no reason why the indebtedness of the new enterprises should cause trouble. It may, however, readily be admitted that the repercussions of the breakdown of the investment boom are likely to be much more severe where the investments have been financed with borrowed money.

<sup>1</sup> *Booms and Depressions*, page 11.

<sup>2</sup> "The Debt-deflation Theory," *loc. cit.*, page 348. Italics in the original.

We may thus conclude that the "debt-factor" plays an independent rôle as intensifier of the depression, but can hardly be regarded as an independent cause of the breakdown.<sup>1</sup>

§ 5. FINANCIAL ORGANISATION AND THE SEVERITY  
OF THE DEPRESSION

Mr. A. LOVEDAY has called attention to certain *Rigid money* features of our present financial organisation which *contracts* tend to aggravate the consequences of a fall in the *intensify* price-level. "We may not—we do not—know", *deflation.* he says, "the causes of the recurrence of periods of depression; but we do know many of the factors that contribute to their severity."<sup>2</sup> "When prices and the national income expressed in money values diminish, the money claims represented by the contracts remain unchanged; the contractors who have received a money claim obtain a greater share of the national dividend and others obtain less. When contracts are for short periods, . . . the shift in the distribution of income may be nugatory or nil. They can be changed as rapidly or almost as rapidly as the prices of commodities move. But when they stretch over a period of years, or when rapid change is in practice difficult, they must affect the distribution of income and thus of purchasing power. . . .

" . . . The point which I desire to throw into relief is that, in a financial organisation such that claims on national income vary less readily than do prices of goods, the rigidity of those claims itself constitutes a contributory cause of further price declines. The greater the proportion of monetary fixed claims in society as a whole the greater the danger.

"In the international field, the effects of such fixed claims are still more serious, because the transfer of wealth from debtor to

<sup>1</sup> There are other factors of which Fisher seems also to think when he talks of over-indebtedness, *e.g.*, war debts and reparation payments. It may, of course, be readily conceded that, if such political debts are excessive and if the countries concerned do not pursue an appropriate policy, the existence of such debts may lead to contraction and depression.

<sup>2</sup> "Financial Organisation and the Price Level" in *Economic Essays in Honour of Gustav Cassel*, London, 1933, page 409.



creditor that has to be made is not within the country. It is not the distribution of a national income that is affected directly, but its amount. A larger slice must be cut off the national income of the debtor State and handed over to the foreign creditor."<sup>1</sup>

Mr. LOVEDAY then points out that for various  
*Bonds* reasons these financial rigidities have increased.  
*versus* "In recent years, the joint-stock system, under  
*equities.* names varying with the law in different countries,

has replaced to a constantly increasing extent the more personal enterprise. . . . Gradually with the growth of the big industrial concern, with the extension of the multiple shop . . . a greater and greater proportion of the population has been thrust out of positions of direct, independent control into the mass of wage-earning and salaried classes. Such persons can no longer invest in themselves; to the extent that they play for safety or apparent safety, and give preference to fixed-interest-bearing obligations over profit-sharing equities, they inevitably add to the rigidity of the financial system. Many forces have induced them to prefer safety to profit "<sup>2</sup>—that is, fixed-interest bonds to shares and participations.

The rising importance of the small investor as compared with the large capitalist has increased the preference for bonds, since the small capitalist has not the means of a large investor to spread his risk, and is not in a position to form a rational judgment about the chances of investments in equities. Therefore, he prefers savings deposits and fixed-interest obligations. To an increasing extent, moreover, international investments have taken the form of fixed-interest-bearing obligations in preference to shares.

There can be no doubt that these circumstances have played an important part in aggravating the depression of 1923 to 1933. These factors must therefore be incorporated in a fully elaborated theory of the business cycle : but they can find a place in any theory which recognises the deflationary nature of the depression.

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<sup>1</sup> *Op. cit.*, pages 410 and 411

<sup>2</sup> *Op. cit.*, page 412.

## CHAPTER 5

## UNDER-CONSUMPTION THEORIES

## § 1. INTRODUCTION

The under-consumption theories have a long *Historical* history. In fact, they are almost as old as the science *background*. of economics itself. Lord LAUDERDALE, MALTHUS and SISMONDI are prominent among the early adherents of this school of thought. The authors who have done most in recent times to re-state and propagate the under-consumption theory in a scientific way are Mr. J. A. HOBSON<sup>1</sup> in England, Messrs. W. T. FOSTER and W. CATCHINGS<sup>2</sup> in the United States, and Professor Emil LEDERER<sup>3</sup> in Germany.<sup>4</sup> The cruder versions of the theory, which exist in innumerable varieties in all countries, will not be considered here, as their fallacy has been clearly demonstrated on various occasions.<sup>5</sup>

<sup>1</sup> See *The Industrial System*, London, 1909, 1910; *Economics of Unemployment*, 1922; *Rationalisation and Unemployment*, London, 1930.

<sup>2</sup> See *Money*, Boston, 1923; *Profits*, Boston, 1925; *The Road to Plenty*, Boston, 1928.

<sup>3</sup> "Konjunktur und Krisen" in *Grundriss der Sozialökonomie*, Tübingen, 1925; *Technischer Fortschritt und Arbeitslosigkeit*, Tübingen, 1931.

<sup>4</sup> While not himself primarily an advocate of the underconsumption thesis, Mr. Keynes has laid great stress on the deflationary character of acts of saving. In the *General Theory of Employment, Interest and Money*, London, 1936, he has forged, in the concept of the "propensity to consume" an instrument apt for the purposes of the underconsumption theory. The implications of this concept have been more fully developed by Mr. Harrod in his work, *The Trade Cycle*, Oxford, 1936.

<sup>5</sup> For example, by E. F. M. Durbin's *Purchasing Power and Trade Depression*, London, 1931, and H. Gaitskell's contribution to *What Everybody wants to know about Money*, ed. by G. D. H. Cole, London, 1933, pages 348 *et seq.*

It is difficult to summarise these theories because, with some notable exceptions, their scientific standard is lower than the standard of those reviewed earlier in this volume. They cannot be reviewed as systematically as the over-investment and monetary explanations, for it is only in regard to certain phases of the cycle that these theories have anything original to contribute. The under-consumption theory is a theory of the crisis and depression rather than a theory of the cycle. Those members of the school who attempt to explain the cycle as a whole and deal with all its phases (*e.g.*, Professor E. LEDERER) have taken over many features from—or have much in common with—the monetary and over-investment theories.

The following pages will therefore be not so much a review of a theoretical system totally different from the theories reviewed in the preceding pages as a selection of certain hypotheses which admit of consideration in conjunction with parts of the theories examined earlier. It is possible, as we shall see, to find a logically tenable alternative to the explanation of the crisis given by the over-investment theory; and the new explanation of this particular phase of the cycle seems to be quite compatible with the monetary and over-investment theories' account of the nature of the upswing and the downswing.

## § 2. DIFFERENT TYPES OF UNDER-CONSUMPTION THEORIES

Another reason why it is difficult to summarise  
*Various* the views of the under-consumption theorists is  
*senses* that under-consumption is not a clear-cut, well-  
*of under-* established concept, but covers a great variety of  
*consumption.* phenomena. It is true that all under-consumption  
theories are concerned with the alleged insufficiency  
either of money incomes or of expenditure on consumers' goods  
out of those incomes; but the variations between the different  
theories are very great. We shall now consider briefly the different  
ways in which under-consumption in one sense or another has  
been held responsible for the recurrence of economic depressions.  
Two versions of the theory will finally emerge which seem to  
merit closer examination.

1. The unqualified statement that, owing to technological improvements and inventions and to the accumulation of capital, there is a tendency for production to outgrow the capacity for consumption—this is the under-consumption theory in its crudest form—can be dismissed offhand as wholly unfounded.

2. Very frequently, “under-consumption” is used to mean the process by which purchasing power is in some way lost to the economic system, and therefore fails to become income and to appear as demand in the market for consumers’ goods. Money disappears or is hoarded, and the income-velocity of money diminishes. In this sense, under-consumption is just another word for deflation. Deflation is, of course, a possible cause of the breakdown of the boom and the main cause of the depression; but, as such, it is covered by the monetary explanation of the business cycle.

3. The under-consumption theory is frequently put forward in the following form. There is, it is said, a secular tendency for the volume of production and the secular to grow. The population increases. Inventions fall of prices. and improvements raise the output of goods. Additions are made to the stock of capital—that is, to tools and implements. Commodity prices must therefore fall and depression ensue, unless the quantity of money is continuously increased so as to create the consuming power necessary to absorb the increasing output of goods at stable prices. This is certainly too sweeping a statement to be of much value in explaining the course of the cycle. The various factors which make for an increase in the volume of production must be treated separately. In particular, a distinction must be made between growth factors which involve a decrease in the unit cost of production and those which do not. Technological improvements reduce the unit cost of production. Most authorities conclude, therefore, that an increase in production which is due to such improvements does not call for an increase in the quantity of money. In that case, a fall in prices is not harmful, because it goes parallel with a fall in cost and does not involve a fall in money wages and incomes in general. On the contrary, in the face of falling cost, a price-stabilising policy would create a

profit inflation and lead to a dangerous boom and later on inevitably to a collapse and depression. To this proposition we shall return later.

In the case of a growing population, the situation is different. Here most authorities (with the notable exception of Professor HAYEK) would agree that the quantity of money ought to increase. Otherwise all prices, including the prices of the factors of production, principally wages, must fall. It goes without saying that this is not a satisfactory arrangement, if only because of the rigidity of wages.<sup>1</sup>

More difficulties are presented in the case of a growing capital stock. Should the quantity of money be increased in such a way that prices remain stable? And which prices: commodity prices or factor prices?

These problems, which cannot be dealt with exhaustively at this juncture, have been much discussed, principally by monetary writers (in recent times, for example, by Mr. HAWTREY and Professor ROBERTSON).<sup>2</sup> They occur in the writings of the under-consumption theorists intermingled with other arguments which will be discussed presently. (It is for this reason that they have been touched upon here, although they do not constitute the heart of the under-consumption theory.)

But what is the bearing of these considerations on the explanation of the business cycle? The growth of population, the enlargement of the capital stock, the improvements in the technical

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<sup>1</sup> This Professor Hayek too would admit. But he thinks that the injection of money necessary to prevent the fall in wages would create a vertical maladjustment in the structure of production, of the kind that we have discussed in the section on the monetary over-investment theory. See *Prices and Production*, 2nd ed., 1934, page 161.

<sup>2</sup> Compare also G. Haberler, *The Different Meanings attached to the Term "Fluctuations in the Purchasing Power of Gold" and the Best Instrument or Instruments for measuring such Fluctuations* (Memorandum submitted to the Gold Delegation of the League of Nations, 1931). A German translation appeared under the title: "Die Kaufkraft des Geldes und die Stabilität der Wirtschaft," in *Schmoller's Jahrbuch*, Vol. 55, 1932. See also W. Egle, *Das neutrale Geld*, Jena, 1933, and J. G. Koopmans, "Zum Problem des neutralen Geldes," in *Beiträge zur Geldtheorie*, Vienna, 1933. The older literature is well reviewed in C. M. Wash, *The Fundamental Problem in Monetary Science*, New York, 1903.

processes of production, are all secular movements. Therefore, the proposition that the supply of money does not keep pace with the growth of production cannot, *per se*, explain a cyclical movement. It is hopeless to explain the business cycle without taking account of the cumulative nature of the "short-run" processes of expansion and contraction. The considerations in question do not show why these processes are cumulative. Nor do they explain why those processes come to an end sooner or later and give rise at once to a cumulative process in the opposite direction. Their value is rather as a means of determining the trend, a deviation from which, in the one or the other direction, is liable to start a cumulative process of expansion or contraction.

There remains the possibility that the growth of production or the increase in the supply of money moves in cycles. The volume of production shows, of course, a cyclical movement. But this is exactly the phenomenon which is to be explained : it cannot be taken as an independent cause.<sup>1</sup> The second assumption that the supply of the circulating medium changes cyclically is the essence of the purely monetary explanation of the business cycle.

We conclude that these arguments put forward under the name "under-consumption" theory are partly irrelevant for the explanation of the short cycle and partly covered by other theories.

4. In its best-reasoned form (*e.g.*, in the writings of Messrs. J. A. HOBSON and FOSTER and CATCHINGS), *Over-saving theory*, the under-consumption theory uses "under-consumption" to mean "over-saving". Depressions are caused by the fact that too large a proportion of current income is being saved and too small a proportion spent on consumers' goods. It is the process of voluntary saving by individuals and corporations which upsets the equilibrium between production and sales.

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<sup>1</sup> By an "independent cause" is meant a change produced by outside factors which can be taken for granted by the economist, such as changes in agricultural production, due to weather conditions. Nothing of this sort is to be found in industrial production.

The next step in Mr. HOBSON's analysis is the contention that the cause of over-saving is to be found in the unequal distribution of income. It is principally the recipients of large incomes who are responsible for most of the saving.<sup>1</sup> If the wage level could be raised and the national dividend more equally distributed, the proportion of savings would no longer be dangerous. The demand for equalisation of income as a means of reducing cyclical fluctuations, which is very popular in certain quarters, has one of its roots here.

We shall leave this part of the argument on one side, however, and concentrate on the fundamental proposition that over-saving is the cause of the evil.

The activity of saving may conceivably exert an adverse influence on the economic situation in three different ways.

(a) Saving may lead to depression because *Saving and hoarding*. savings do not find an outlet in investment. There may be an excess of savings over new investment which will be intensified by every additional act of saving, at any rate where saving extends beyond a certain limit. In other words, saving produces a deflation, a decrease in aggregate demand for goods, because the sums saved are used to liquidate bank credit or are accumulated and hoarded in the shape of cash or idle deposits. There is the further possibility that savings are spent, not in financing new investments, but in buying property and titles to property sold by people who are forced to sell because they have suffered losses. During the depression, when the spirit of enterprise runs low and pessimism prevails, it is probably true to a large extent that saving engenders deflation rather than new investments, and that the slump is to that extent prolonged and intensified. But the breakdown of the boom can hardly be explained in this way. There is no evidence that an absorption of savings occurs during the boom or before the crisis: on the contrary, there invariably exists a brisk demand for new capital, signalled by high interest rates. There is an excess of investment over saving and not the contrary.<sup>2</sup> The situation changes, of course, completely

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<sup>1</sup> Statistical evidence is to be found, e.g., in *America's Capacity to Consume*, edited by the Brookings Institution, Washington, 1934.

<sup>2</sup> It should be noted that the terms "savings" and "investment" are used here in the ordinary meaning of the two words. Mr. Keynes, in

after the turning-point, when the depression has set in. Then there is an excess of savings over investment.

But this analysis is no special contribution of the under-consumptionists : it is the common ground of the monetary and over-investment theorists (especially Professor ROBERTSON).

Now we come to the heart of the under-consump-

<i>Saving decreases demand for, and increases supply of, consumption goods.</i>	tion or over-saving theory. (b) Savings lead on the one hand to a fall in the demand for consumers' goods, because the money saved is not spent on consumption. (c) On the other hand, savings are, as a rule, invested productively. The sums saved are used to add to the capital equipment of the community.
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Factories, railways, power-plants and machines are constructed. The ultimate aim of all this is to increase the production of goods for final consumption.

Thus the demand for consumers' goods is reduced, their supply is increased and their prices must fall. The market for consumption goods holds the central position in the economic system. So long as all goes well there, the whole productive apparatus, which is piled up behind the consumers' market and is there only to serve it, will run smoothly : when the equilibrium is disturbed there, the whole economic system will suffer.

To this theory there are serious objections. To

*Criticism.* say that the situation in the earlier stages of production depends *exclusively* on the state of affairs in the consumption industry—that, if the latter flourishes, the former will prosper and that, if production falls or stagnates in the latter, the former will necessarily decline or stagnate too—is, in this general and categorical form, certainly wrong. We have already had occasion to discuss a case where a general increase in demand for consumers' goods and a consequent tendency of the consumption

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his *Treatise on Money*, has given them a very peculiar definition, according to which an excess of savings over investment does not imply deflation but is, by definition, equal to losses, and an excess of investment over savings equal to profits. An extensive discussion of the problem of defining saving, investment and hoarding is to be found in Chapter 8, below.



industries to expand production are not only not a sufficient condition of prosperity in the higher stages of production, but, on the contrary, the cause of its collapse. The monetary over-investment theory has shown the possibility that, when at the end of the boom the demand for consumers' goods rises and their production tends to increase, this upsets the equilibrium between costs and prices in the higher stages, because there are then no idle factors of production which can be drawn into employment in the higher stages, and there are not the necessary funds (capital supply in terms of money) to retain employed factors of production against the competition of the consumption industries.

According to the over-saving (under-consumption) theory, the equilibrium is upset by the opposite course of events—that is, by a decrease in the demand for consumers' goods. The criticisms to which the theories of Messrs. FOSTER AND CATCHINGS (who have elaborated the over-saving theory most fully) have been subjected by Messrs. DURBIN, HANSEN, HAYEK, ROBERTSON and others,<sup>1</sup> have at least shown that, in spite of a high rate of saving, there is always an equilibrium position *possible* with full employment of the factors of production. This is true in the first instance (that is, during the period of construction of the new capital) as well as in the long run (after the new capital equipment has been put into operation).

Looking at the problem broadly, it is clear that  
*The function of saving.* the social function of saving is to release resources from the production of goods for immediate consumption for the production of producers' goods.<sup>2</sup> Temporarily, the production of consumers' goods is curtailed in order to permit of increased production at a later point with the help of capital goods which have been constructed in the meantime. The fall in the demand for consumers' goods has therefore its function. The monetary incentive for the entrepreneur

<sup>1</sup> See Durbin : *Purchasing Power and Trade Depression*, London, 1933 ; Hansen : *Business Cycle Theory*, 1928, Chapter III ; Hayek : " The Paradox of Saving " in *Economica*, May 1931 ; D. H. Robertson : " The Monetary Doctrines of Messrs. Foster and Catchings " in *Economic Essays and Addresses of Pigou and Robertson*, London, 1931.

<sup>2</sup> Compare especially C. Bresciani-Turroni, " The Theory of Saving, " in *Economica*, 1936.

to undertake the construction of new capital equipment, in spite of decreased demand for consumers' goods, is provided by a fall in the rate of interest, which permits a lowering of unit cost through the utilisation of roundabout methods of production of superior productivity. The cruder versions of the under-consumption theory do not offer an adequate analysis of these essentials of the capitalistic method of production. They therefore do not deal with the possibility of a smooth adjustment of the production process to saving. But it must be admitted that, while their opponents have shown the theoretical *possibility* of a smooth absorption of savings in new investments, they have not shown its *necessity*. Entrepreneurs may make no use of the possibility of extending the structure of production. The consumers' goods industries and the immediately preceding stages will thereupon curtail production; and this may lead to a destruction of purchasing power. This in turn may deter producers in the higher stages from embarking on new investments, in spite of the incentive provided by the fall in the interest rate. All depends on their psychological reactions, on their anticipations. If the money saved is not invested, a cumulative process of deflation will start and saving may thus defeat its own end.

Thus we are back at case (a) discussed above. Much will depend on whether there is a continuous flow or a gradual increase of savings, whether there are violent changes, and whether there is a brisk and continuous demand for new credit (capital) so that an increasing supply is readily absorbed at slightly falling interest rates.<sup>1</sup>

Let us now apply this analysis to the broad facts of the business cycle. During the depression, demand for new capital is at a low level and inelastic. There is therefore a great danger of new savings running to waste instead of being invested. During the upswing, demand is brisk and new savings easily find an outlet in new investment. Can the over-saving doctrine contribute anything to the explanation of the crisis, the down-turn from prosperity to depression?

There is no evidence for the assumption that the rate of saving rises at the end of the boom and so creates serious difficulties.

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<sup>1</sup> Bresciani-Turroni, *loc. cit.*

On the contrary, for reasons which have been touched upon in an earlier passage, it would seem rather that the rate of saving falls in the later phase of the boom.

5. But it has been argued by many writers—  
*Valuable aspects of the under-consumption theory.* and the argument may be said to represent a new version of the under-consumption theory—that the end of the boom comes when the fruits of the new processes which have been initiated with the help of voluntary and forced saving during the upswing begin to emerge. The crisis is brought about, not by a sudden rise in the rate of saving (*i.e.*, a fall in the demand for consumers' goods) but by a rapid rise in the rate of output (*i.e.*, in the *supply* of consumers' goods). This theory, which is the direct opposite of the shortage-of-capital explanation of the breakdown, merits close examination and will be discussed in the next section.

6. Another valuable version of the under-consumption theory is the doctrine that the failure of wages to rise rapidly enough during the upswing—more explicitly, the lag of wages behind prices—is the cause of excessive profits, which in turn entail a dangerous credit inflation and eventually engender serious disturbance of existing relations culminating in a crisis. This theory will be discussed in § 4 of this chapter.

### § 3. INSUFFICIENCY OF CONSUMERS' DEMAND VERSUS SHORTAGE OF CAPITAL AS THE CAUSE OF THE COLLAPSE OF THE BOOM

*Capital shortage versus insufficiency of consumers' demand.* So far we have encountered, and discussed, the following answers to the question why the cumulative process of expansion always comes to a more or less abrupt end: Disturbances from outside the economic system; insufficiency of the money supply; shortage of capital in the sense of a vertical maladjustment of the structure of production; horizontal maladjustments; a general rise in "cost" and decline of efficiency.

The hypothesis with which we have now to deal is the exact counterpart of the shortage-of-capital theorem. It is important

to make the issue and the two answers quite clear. The problem is this : Is the turn from prosperity to depression brought about by a shortage of capital or by an insufficiency of the demand for consumers' goods ? Does the investment boom collapse because the supply of capital becomes too small to complete the new roundabout methods of production, or because consumers' demand is insufficient to sustain the increased productive capacity ?

The argument of the under-consumptionists is this. During the upswing of the cycle, society develops its productive apparatus. But it takes some time before the production of consumers' goods begins to increase. In the meantime, their supply is deficient; prices rise; and there is therefore a constant stimulus in the direction of further investment. But as soon as the new roundabout methods of production are completed, the new investments are finished, consumers' goods begin to be poured out; the markets for consumers' goods are glutted : and this reacts with increasing intensity on the higher stages of production.

According to the other view, exactly the opposite is true. The trouble is due, not to a deficiency of consumers' demand, but to the contrary tendency. The demand for consumers' goods tends to rise because the newly created purchasing power, which has been placed at the disposal of entrepreneurs, becomes income in the hands of the owners of the factors of production and is spent on consumers' goods before the supply of these goods can be sufficiently increased. The demand for consumers' goods is thus too large rather than too small. There is not enough "waiting", not enough "lacking" in the terminology of Professor ROBERTSON, or, in ordinary words, not enough saving to complete the investments initiated. The consequence is that the rate of interest tends to rise, and the banks are called upon to provide the necessary amounts of capital. Sooner or later, however, the inflation must be stopped; the flow of new credit comes to an end; and the completion of a great number of new investments becomes impossible. They are consequently abandoned, and this is the break which sets in motion the downward spiral of contraction.

Both theories contemplate what we have called a *vertical* maladjustment in the structure of production; but these vertical maladjustments are not of the same order. As we shall see at once, the

“top” of the structure of production according to the one theory, the “bottom” according to the other, is over-developed in relation to the flow of money. In a sense, both theories can be described as over-investment theories. In the one case, new investments are excessive in relation to the supply of saving; in the other case, they are excessive in relation to the demand for the product. That the distinction is important may be seen from the fact that the conclusions drawn as to the appropriate policy to follow in order to avert, mitigate or postpone the breakdown are diametrically opposed. According to the one view, every measure that tends to increase consumers’ demand and to reduce saving is helpful. According to the other view, exactly the opposite policy is called for. (But such policy, it should be noted, holds only for the later phase of the boom. As soon as the downward movement has got under way and the spiral of deflation has been started, the position changes completely and quite different considerations come into play.)

We must try to make the distinction still clearer and to distinguish these two cases from horizontal maladjustments and from a purely monetary insufficiency. This is not always easy : it is sometimes difficult to ascertain which case a writer has in mind.

The best method of finding out the exact meaning *The structure of production* and implications of the different theories is to ask what are the appropriate measures called for, and *and the flow of money.* to what extent the crisis can be averted by the public changing its habits of saving and spending and the mode of spending (without considering whether in practice this change can or cannot be brought about by State intervention). If an insufficiency of the supply of money, a credit contraction pure and simple, is the sole cause of the termination of prosperity, the situation can be remedied by purely monetary measures—viz., by an increase in the money or credit supply by means of a reduction of interest rates. With a very few exceptions (among whom Mr. HAWTREY is prominent), most writers would agree that in most cases this is impossible.<sup>1</sup> The down-turn and

<sup>1</sup> See A. Amonn : “ Zur gegenwärtigen Krisenlage und inflationistischen Krisenpolitik ” in *Zeitschrift für Nationalökonomie*, Vol. V, 1934, page 1 and *passim*.

the depression can be postponed, but not averted, by a cheap-money policy. The reason is that the difficulties do not arise, or do not solely arise, from an insufficiency of the flow of money in general so much as from the fact that the structure of production—*i.e.*, the allocation of the factors of production to different stages and branches of industry—does not correspond to the flow of money as determined by the distribution of individual money incomes between saving and spending and the different branches of spending. Such a discrepancy cannot be remedied by a simple expansion of credit. The authorities may perhaps determine where the new money is to be spent at first. They can, that is to say, choose the point of injection of the new money into the economic system; but they cannot hope—at any rate without drastic reorganisation of the whole economic system (*i.e.*, without abandoning the existing individualistic organisation of the system)—to control how the money is spent by the successive recipients. But suppose it *were* feasible to change at will the people's habit as to saving and spending, what changes would be best calculated to forestall serious trouble? Obviously, if we rule out an insufficiency in *total* demand, there must be such a distribution of the national income as will make the flow of money correspond to the flow of goods.

The capital-shortage theory replies that all trouble could be avoided if people would consume less and save more, and thus supply the necessary funds for completing the uncompleted roundabout processes of production. The reply of the pure under-consumptionist is the contrary. If people will expand consumption and save less, he says, the breakdown can be averted. That is very well, if the difficulty is due to the too early completion of the new roundabout processes of production. The situation is that people intend to save more, to wait longer. This implies that they are not yet prepared to take over an increased output of consumers' goods. Over-investment is not a correct description of such a situation. Under-investment would be a better description, since the crisis can be avoided, for the time being at least, by undertaking longer roundabout processes of production—*i.e.*, more ambitious investment schemes which would postpone the appearance of consumable goods on the market.

These two situations can be well described with the help of the terminological apparatus developed by some Swedish writers.<sup>1</sup> These writers distinguish in respect of saving, investment, income and similar concepts between an *ex-ante* and an *ex-post* sense in which these concepts can be used. On the one hand, it is necessary, for the practical business man as well as for the theoretical economist, to find out *ex-post* what actually happened during a certain period. There must be a system of book-keeping which "answers the question what has happened during a past period. It is an account *ex-post*" (OHLIN, *loc. cit.*, page 58).

"This, however, explains nothing, for it does not describe the causal or functional relations. As economic events depend on man's actions, one has to investigate what determines these actions. They always refer to a more or less distant future. Hence, one must study those expectations about the future which govern actions . . . This analysis of the forward-looking type can be called *ex-ante*, using MYRDAL's convenient expressions" (OHLIN, *loc. cit.*, page 58-59).

With the help of these concepts, we can now formulate as follows an equilibrium condition which is implicit in the two rival theories under discussion: *Ex-ante* saving should be equal to *ex-ante* investment. In other words, the investment plans of entrepreneurs should correspond to the intended savings of the public. If the two do not coincide, some producers will be disappointed and the equilibrium will be disrupted.

The situation envisaged by the capital shortage theorists can now be described as an excess of *ex-ante* investment over *ex-ante* saving, which must lead to a disappointment and losses of producers of capital goods (in the higher stages of production), as analysed in detail by Professor HAYEK.

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<sup>1</sup> Compare especially G. Myrdal, "Der Gleichgewichtsbegriff als Instrument der geldtheoretischen Analyse" in *Beiträge zur Geldtheorie*, edited by Hayek, 1933, and B. Ohlin, "Some Notes on the Stockholm Theory of Savings and Investment" in *Economic Journal*, Vol. 47, 1937, pages 53 *et seq.* and pages 221 *et seq.* For further details of this approach, see Chapter 8.

On the other hand, the situation which, according to the under-consumption theorists, typically arises at the end of the boom, can be described as an excess of *ex-ante* saving over *ex-ante* investment, which must lead to disappointment and losses on the part of producers of consumers' goods.<sup>1</sup>

Both kinds of maladjustment could be avoided by an appropriate change in the saving and spending plans of the public.

If horizontal maladjustments are involved, a shift in the distribution of income between saving and expenditure on consumers' goods cannot remedy the situation. Changes in consumption habits will then be necessary to restore equilibrium. For example, if the motor-car industry is over-developed, people must be made to buy more motor-cars instead of something else.

It is clear that shortage of capital and insufficiency of consumers' demand are alternative explanations. The public cannot be reproached at the same time for saving too little and saving too much. But, as Professor ROBERTSON has pointed out,<sup>2</sup> it is quite conceivable that, if in a given situation capital shortage was "the actual spear-head of relapse", insufficiency of consumers' demand in presence of an increase in output would have brought about the crisis somewhat later.

Vertical maladjustments of each type on the one hand and horizontal maladjustments and insufficiency of total demand (insufficiency of money supply) on the other are quite compatible. To a certain extent they probably always go together and are frequently difficult to distinguish. Since many writers do not carefully distinguish these cases, it is often difficult to know which they have in mind. The reason for this ambiguity is perhaps to be found in the fact that, in all these cases, the proximate cause of the breakdown is an insufficiency of demand as compared with the supply coming on the market. This is true alike in the case of a horizontal

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<sup>1</sup> Certain differences, fundamentally of a terminological kind, between the Swedish analysis and the analysis used by the writers dealt with in the text will be discussed more thoroughly in Chapter 8 below.

<sup>2</sup> In "Industrial Fluctuations and the Natural Rate of Interest," *Economic Journal*, December 1934.



maladjustment or an insufficiency of demand for consumers' goods, and in the case of a capital shortage, which finds its expression in an insufficiency of demand for producers' goods and "machines" in particular, since possible purchasers cannot get hold of enough "capital" to purchase them (SPIETHOFF). Furthermore, as Professor LEDERER<sup>1</sup> has remarked, the fact that the breakdown begins in the producers' goods industries need not mean that capital shortage is the real cause of the trouble. It is conceivable that the consumption industries may quickly become aware of the limitations of their further expansion in view of the insufficiency of consumers' demand. If that is the case, they will restrict their orders, and by so doing may precipitate a crisis in the higher stages of production without having themselves got into trouble. This can only be made clear by putting and answering the question with which we started : How should the flow of money between saving and spending and between the various branches of spending be modified in order to restore equilibrium ?

Professor LEDERER explains the breakdown of the *Lederer's boom* chiefly by insufficiency of consumers' demand. *theory.* (How he explains the genesis of this insufficiency will be seen in the next section.) He says that equilibrium could be easily restored if wages were increased and profits lowered<sup>2</sup>—that is to say, the rate of saving (he says, of "accumulation") must be reduced and the rate of consumption increased. This is brought about eventually during the crisis and depression.<sup>3</sup> But he makes an important qualification. He says that, so far as "the crisis originates from a disproportion in the sphere of production" (in contradistinction to a disproportion in incomes), it cannot be cured by a rise in wages. He seems to be thinking of what we call horizontal maladjustments in the structure of

<sup>1</sup> "Konjunktur und Krisen" in *Grundriss der Sozialökonomie*, IV. Abteilung, I. Teil, Tübingen, 1925, page 394.

<sup>2</sup> *Op. cit.*, page 401.

<sup>3</sup> *Op. cit.*, page 394. He seems to overlook the alternative possibility of the breakdown being caused by capital shortage—that is, by under-saving and over-consumption. Speaking about Spiethoff's theory, he says : "An over-production in the earlier stages of production, in the coal-mines, iron-and-steel works, etc., obviously means only that the demand for finished goods cannot rise to that extent which would correspond to the actual production of producers' goods" (page 386).

production, and (later on) of the deflation during the depression. If the value of money which was lowered during the boom is gradually restored during the depression, wages must fall. But he insists that wages should fall less than prices. If they fall more rapidly than prices, the crisis is intensified.

*A monetary under-consumption theory.* Professor HANS NEISSER has worked out a theory which could be described as a "monetary under-consumption theory".<sup>1</sup> He explains the breakdown of the boom by under-consumption in the sense defined above and analyses carefully how the difficulties in the consumers' goods industries are likely to entail deflation and so spread the trouble to all parts of the system. He is not exclusively an under-consumption theorist; he points out that other reasons for the collapse of the boom, such as under-saving (the opposite of under-consumption), are not at all inconceivable and have actually brought a number of cycles to an end. He believes, however, that the situation is especially serious if the trouble first arises in the consumption industries, for this constitutes, so to speak, an "endogenous" cause of deflation. When consumption industries suffer losses, investment will at once be curtailed and recession will spread immediately to the upper stages of production while, according to him, a difficulty which arises in the capital goods industries is in itself no sufficient reason for a decline of production in consumers' goods industries.

An influential sponsor of the view that the *Importance of* breakdown of the boom is brought about, not by a *construction* shortage of capital, but by insufficiency of demand *period in the* in face of a rapid increase in the output of *upswing.* consumers' goods is Professor ALBERT AFTALION.<sup>2</sup>

Professor AFTALION builds his theory largely on the acceleration principle. Moderate increases or reductions in

<sup>1</sup> "General Over-production. A Study of Say's Law of Markets" in *Journal of Political Economy*, Vol. 42, 1934, pages 433-465. Cf. also his book *Some International Aspects of the Business Cycle*, Philadelphia, 1936.

<sup>2</sup> *Les crises périodiques de surproduction*, Paris, 1913. See also his article "The Theory of Economic Cycles based on the Capitalistic Technique of Production" in the *Review of Economic Statistics*, October 1927, pages 165 *et seq.* Only part of Aftalion's theory will be examined

the production of consumers' goods give rise to relatively large fluctuations in the production of capital equipment. The boom is stimulated by a deficiency of consumers' goods; and this leads to an increase in the production of capital goods. But the modern capitalistic process of production is time-consuming. The construction of capital goods which must precede the production of consumers' goods takes months or even years. Therefore, the output of consumers' goods does not rise at once, or at any rate does not at once rise sufficiently. Prices of consumers' goods remain high, the profit margin persists, and there is a constant stimulus to produce capital equipment. This phase of capitalistic production, in which capital goods are being created, is the period of prosperity. It is the capitalistic technique of production, the fact that a long time must elapse before the output of consumers' goods can be increased, which prolongs the prosperity period, over-stimulates the construction of capital goods, and leads finally to a disruption of economic equilibrium.

The breakdown comes when the roundabout processes of production which have been started during the upswing are completed and consumers' goods begin to pour out. It is of course true that the duration of the processes of production is not uniform for all types of goods. Therefore, the processes of production which have been initiated will not all be completed at the same time. The prosperity does not terminate when a single process is finished; it ends only when a great quantity of capital in the majority of industries is set to work turning out consumers' goods.

Professor AFTALION compares the time required for the manufacture of means of production to the time which elapses between the moment of rekindling a fire and the moment at which it begins to give off heat. "If one rekindles the fire in the hearth in order to warm up a room, one has to wait a while before one has the desired temperature. As the cold continues, and the thermometer

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here. On the whole, his theory cannot be classified as an under-consumption theory: but his explanation of the crisis as reviewed in the text is the same as that of the under-consumptionists. His explanation of the cycle as a whole suffers from the inadequacy of the analysis of the monetary factor. Compare the criticism by D. H. Robertson in *Economic Journal*, Vol. 24, 1914, page 81, and A. H. Hansen's review in *Business Cycle Theory*, pages 104-111.

continues to record it, one might be led, if one had not the lessons of experience, to throw more coal on the fire. One would continue to throw coal, even though the quantity already in the grate is such as will give off an intolerable heat, when once it is all alight. To allow oneself to be guided by the present sense of cold and the indications of the thermometer to that effect is fatally to overheat the room.”<sup>1</sup>

The idea that the length of the prosperity phase of the cycle depends on the duration of the new productive processes (which is, in the main, the period of construction of new capital equipment) has been widely re-echoed. Professors PIGOU and ROBERTSON attribute to what they call the *gestation period* of capital goods,<sup>2</sup> which is substantially equivalent to the period of construction, an important rôle in determining the length of the upswing. It is also part of Professor SCHUMPETER's theory that the boom is terminated when the new productive processes are completed and an additional flow of finished goods appears in the market.

The view of these writers is that the upswing is usually concentrated in one or two leading industries—railway construction in the third quarter of the nineteenth century and, later, electrical machinery and automobiles.

It must be admitted that the exact classification of these theories is not easy. It is not always apparent whether all these writers are thinking of over-saving in the strict sense in which we have defined it above, when they say that the consumers' demand is insufficient to absorb the swollen stream of goods flowing into the market. It is not always quite clear whether they are not thinking also of horizontal maladjustments or some other maladjustments which may have no place in this conspectus of the position. The “*gestation period*” of durable goods may also be interpreted as meaning that the capital supply (*i.e.*, the flow of saving) is

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<sup>1</sup> Substantially the same theory is advanced by F. W. Taussig, *Principles of Economics*, 3rd ed., Vol. I, pages 391 and 392. This idea has been frequently used for the explanation of cycles in particular industries—*i.e.* the “hog cycle”, “shipbuilding cycle”, etc.

<sup>2</sup> This is also stressed by F. Lavington : *The Trade Cycle, an Account of the Causes producing Rhythmical Changes in the Activity of Business*, London, 1922, page 72.

insufficient to absorb the new capital goods as they are completed. The obscurity will remain in the absence of answers to the initial question as to what changes in the flow of money from saving to spending, from spending to saving, or from one branch of spending to another, are capable of restoring equilibrium or forestalling disturbance.<sup>1</sup>

Unfortunately, explicit answers to this question are few and far between. But, since we are interested rather in possible theories (that is, in hypothetical explanations) than in theorists and their doctrines, we may leave the matter there.

#### § 4. THE FAILURE OF WAGES TO RISE SUFFICIENTLY AS THE CAUSE OF THE EXCESSES OF THE BOOM

In its bare outline, the argument is this. The  
*Lag in* prosperity phase of the cycle is characterised by a  
*wage-rise* great increase in the production of capital goods.  
*stimulates* The breakdown is caused by "over-investment".  
*investment.* (As will be seen later, it is not always clear exactly what the authors whose theories are discussed in this section mean by over-investment.) The necessary stimulus and the necessary funds for these investments are derived, in part at any rate, from the excessive profits of entrepreneurs. This profit-inflation can and must arise because wages and certain other incomes fail to advance in harmony with rising prices or falling costs due to rapid technical progress.

This theory has been used to explain the business cycle in general by E. LEDERER<sup>2</sup> and E. PREISER.<sup>3</sup> In recent writings, it has frequently been advanced as an explanation *ad hoc* of the last American boom.<sup>4</sup>

It is obviously closely connected with the monetary over-investment theory. A certain lag of wages or other income

<sup>1</sup> Cases are of course conceivable in which no such change would be sufficient to restore equilibrium.

<sup>2</sup> Lederer, *op. cit.*, pages 393 and 394.

<sup>3</sup> Preiser : *Grundzüge der Konjunkturtheorie*, 1933.

<sup>4</sup> Cf. A. D. Gayer : *Monetary Policy and Economic Stabilisation*, pages 113-131, 1935, and A. B. Adams : *Our Economic Revolution*, pages 1-15, 1934.

(especially, of the relatively inflexible incomes such as those of State officials, pensioners, rentiers, the holders of fixed-income-bearing securities, and the like) is a normal and important corollary of forced saving—that is, of the formation of capital by means of an inflationary expansion of credit. If wages and all other incomes were to rise automatically with, and to the same extent as, prices with each injection of new money, there would be little scope for forced saving.

As we have seen, the monetary over-investment theory runs mainly in terms of the rate of interest. According to it, the expansion is brought about by the fact that the rate of interest is too low, either because the money rate of interest has been lowered or because the natural rate has risen. It is obviously compatible with this view that the movement of wages and other incomes should also have a determining influence. If wages, etc., fail to rise, profits swell; and this provides a strong stimulus for further expansion of credit and investment. In the terminology of the over-investment school, the profit rate rises; hence the demand for credit goes up and credit inflation ensues. Thus the lag of wages and other income is an important factor in the reinforcement of the cumulative expansion process. It follows that the boom could be stopped by a sufficient rise of wage rates as well as of interest rates.

So far, this type of under-consumption theory<sup>1</sup> and the monetary over-investment theory are in no way contradictory, but are rather complementary to each other. There seems also to be agreement that credit expansion is a necessary feature of the picture.

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<sup>1</sup> It may, of course, be argued that this type of theory is not properly an "under-consumption" theory, since it stresses the cost aspect of wages, etc., rather than the fact that they constitute demand for consumers' goods. There is also a certain contradiction, at least on the surface, in that the same writers who see in a lag of wages a stimulating factor for the boom are nearly all of the opinion that a fall in wages intensifies depression. That is to say, they advocate a rise in wages in order to check the boom and to combat the depression. It would, however, seem possible to reconcile these two propositions by special assumptions about the monetary situation. During the depression, a fall in wages may conceivably lead to the liquidation of bank credit, while a failure of nominal wages to rise during the upswing does not have the same deflationary or anti-inflationary effect.

The difference between the two groups arises over the question, why exactly does the boom eventually collapse? What is the nature of the disequilibrium, and which factor does the mischief?

According to the over-investment theory, the credit expansion is the villain of the piece. Excessive profits due to the lag in wages and other inflexible incomes are harmful only in so far as they are responsible for inflationary credits, which in turn lead to over-investment in the sense defined above.

To the under-consumptionist group, the danger in the excessive profits is not that they induce a credit inflation, but that they are the source of excessive saving. It is a widely held belief, accepted by socialists and liberals, under-consumptionists and over-investment theorists<sup>1</sup> alike, that the bulk of a nation's savings comes from the higher income strata. The profit-recipients and not the wage-earners provide the funds for investment. Therefore, when profits rise relatively to wages and other incomes, the flow of savings grows. Thus far the monetary over-investment theorist is in agreement. In fact, he welcomes the idea as a useful addition to his picture of the boom. The expansion of capital-goods industries relatively to consumption trades is financed, not only by inflationary credits (flowing from various sources) and ordinary voluntary savings, but also by new additions to voluntary savings out of the big profits realised during the boom.<sup>2</sup> These profits are supposed to be very substantial, and the sums set aside for investment purposes are excessive. Too much is invested; and this leads eventually to the collapse of the

<sup>1</sup> The one group draws the conclusion that an unequal distribution of income is a good thing, the other that it is a bad thing.

<sup>2</sup> This is also Mr. Hawtrey's view. He does not believe that these voluntary savings are supplemented to any considerable extent by inflationary bank credit placed at the disposal of producers. According to him, additional bank credit enters the economic system rather by way of the dealer—that is, near the consumers' end of the structure of production—than by direct stimulation of investment in fixed capital and in the higher stages of production as the monetary over-investment theory would have it.

boom. The breakdown could be avoided, if the profit-recipients would choose to expand their consumption instead of investing.

The process as pictured by the under-consumptionists can also be described as over-investment. But a closer analysis shows that, by over-investment, they mean the contrary of what the monetary over-investment theorists mean by over-investment. For the writers with whom this section is concerned, investments are excessive in respect to consumers' demand and not in respect to capital supply. Over-investment is equivalent to insufficiency of consumers' demand and not to insufficiency of the flow of savings. "The failure of the income of the final consumer in the end checked the process" of expansion in America in 1929.<sup>1</sup> "Relatively to the means of the ultimate consumer, the vast expansion of capacity in durable-goods industries and the huge volume of domestic and factory buildings erected were altogether excessive."<sup>2</sup> "This lopsided growth in the division or distribution of the national money income brought about a rapid development of industry, ending in our present condition, which is marked by excessive productive power and a deficiency of consumers' money income."<sup>3</sup> This seems to be also the idea of Mr. PREISER.<sup>4</sup>

Thus, this version of the under-consumption theory turns out to be the same as that discussed in the previous section. But the conclusion was not inevitable from the first. If we start with the proposition that a lag of wages and other income during the upswing intensifies the boom, it is quite possible to pursue the argument along the lines of the monetary over-investment theory and to hold that the collapse is brought about by an insufficiency of capital supply (*i.e.*, of the flow of savings).

It would seem logical to conclude that an increase in the flow of investible funds which is due to a rise in profits (that is, to a rise and redistribution of income) has exactly the same influence and

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<sup>1</sup> Gayer, *op. cit.*, page 127.

<sup>2</sup> *Ibid.*, page 128.

<sup>3</sup> Adams, *op. cit.*, page 9.

<sup>4</sup> *Op. cit.*: "The continuation of the production process finds its barrier, in every case, in the ultimate consumption" (page 106). "The recession comes, because the accumulation was excessive" (page 110). It is true, however, that there are other passages where he seems to be thinking of "horizontal disproportionalities"—*e.g.*, on pages 84 and 85.



consequences as an increase due to a rise in the rate of voluntary savings (without any change in the size and distribution of income). Hence, those writers who lay the blame on high profits should also take objection to any rise in the rate of savings.

This conclusion is, however, expressly rejected by Mr. PREISER. He has the idea that a rise of investible funds due to higher profits (he calls this "heteronomous" saving) is a quite different phenomenon from an increase due to a rise in the rate of saving from an unchanged income ("autonomous" saving). While the first must lead to a collapse, he sees no reason why the second should not go on indefinitely. The difference is not only of degree, but also of kind. It arises from the alleged fact that the appearance of profits makes the misdirection of capital inevitable. In the case of autonomous saving, it is the rate of interest which guides the entrepreneur in his investment policy. The savings are directed over the capital market, which guarantees a rational distribution. When profits appear everywhere, the investor has to grope in the dark. He has lost connection, so to speak, with the demand of the ultimate consumer; for "heteronomous" savings do not flow through the capital market (pages 80 and 84). The passages quoted in an earlier footnote show that the author does not make it clear what he means by misdirection of capital; is there too much all round in relation to aggregate consumers' demand, or too much in particular branches at the expense of others?

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## CHAPTER 6

## “PSYCHOLOGICAL THEORIES”

## § 1. INTRODUCTION

It is in a way misleading to speak of “psychological” explanations of the trade cycle or of particular phases of it. Every economic fact has a psychological aspect. The subject-matter of economic science is human behaviour—chiefly conscious and deliberate behaviour—which can hardly be separated from its psychological basis. The psychology of human behaviour is therefore a constituent part of the subject-matter of economics. When we assume that an entrepreneur will increase his output if demand rises or cost is reduced, or that workmen will respond to changes in money wages but not so readily to changes in real wages, or that consumers will buy more of a given commodity if the price falls and less if they think it will fall further, or that people will hoard money if the value of money rises—all these assumptions are assumptions about human behaviour which presuppose a certain state of mind on the part of the human agents. Propositions about such actions may be considered as belonging to the sphere of applied psychology: but they also figure continually, whether implicit or expressed, in the economic theories of the cycle. What, then, distinguishes a “psychological” theory from an “economic” one?

There is really no fundamental difference between the “economic” theories already reviewed in these pages and the so-called “psychological” theories. Both make assumptions as to economic behaviour in certain situations. The real difference is sometimes this. The “psychological” theories introduce certain assumptions about typical reactions, mainly on the part of the entrepreneur

and the saver, in certain situations; and these reactions are conventionally called psychological, because of their (in a sense) indeterminate character. But the distinction between the writers who give prominence to these “psychological” factors and the writers so far reviewed is, taken as a whole, a distinction of emphasis rather than of kind. The “psychological” factors are put forward as supplemental to the monetary and other economic factors and not as alternative elements of causation, while on the other hand, though they may be assigned a less prominent place in the chain of causation, they are in no sense overlooked by the majority of writers of the other group.

§ 2. ANALYSIS OF THE PSYCHOLOGICAL FACTOR  
IN THE EXPLANATION OF THE BUSINESS CYCLE

The writers who have laid the greatest stress on *Stress on* “psychological” reactions in the explanation of the cycle are KEYNES,<sup>1</sup> LAVINGTON,<sup>2</sup> PIGOU<sup>3</sup> and TAUSSIG.<sup>4</sup>

Of the writers whose theories have been analysed earlier in this report, MITCHELL, ROBERTSON, RÖPKE, SPIETHOFF all attach a certain importance in their system to “psychological” elements.

It remains to define more precisely the actions and reactions in connection with which the operation of “psychological” factors is postulated by these writers in their explanation of the cycle. “Psychological” factors come into consideration in economic theory in connection with anticipations and expectations. Static theory and those business-cycle theories which are in the main based on the static hypothesis—of which the most typical exponent is perhaps Professor HAYEK—picture the entrepreneur’s decisions as to the volume, and alterations in the volume, of output and employment as being determined by a comparison of prices and costs—that is to say, the price of his product or products

<sup>1</sup> *General Theory of Employment, Interest and Money*, London, 1936, Chapter 22 (“Notes on the Trade Cycle”).

<sup>2</sup> *The Trade Cycle, an Account of the Causes producing Rhythmical Changes in the Activity of Business*, London, 1922.

<sup>3</sup> *Industrial Fluctuations*, 2nd ed., London, 1929.

<sup>4</sup> *Principles of Economics*, 3rd ed., Vol. I, page 393.

and the price of the means of production. "Price" and "cost" are economic terms : but what the economist is concerned with—in all but a few unimportant limiting cases—is *expected* future prices and cost. The prices, costs, profit margins, etc., by which the producer is guided in his decision, should be conceived of, in short, not simply as given factors, but as factors expected to rule in the future.<sup>1</sup> This is so even in the simplest case—the case which seems to underlie a large part of static theory—where the producer is guided in his decisions solely by current prices. *Prima facie*, it might seem that in this case no element of expectation is present. But this is not so : the expectation in this case is the hope or belief that current prices<sup>2</sup> will continue to dominate the future.

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<sup>1</sup> In recent years, it has become fashionable to lay stress on the element of expectation. Keynes' *General Theory of Employment, Interest and Money* is conceived in terms of expectation ; and, at an earlier date, the concept of economic expectation was interpreted and developed by the Swedish school (especially E. Lindahl, G. Myrdal and B. Ohlin : see Myrdal's report on this Swedish literature in his article "Der Gleichgewichtsbegriff als Instrument der geldtheoretischen Analyse" in *Beiträge zur Geldtheorie*, edited by Hayek, Vienna, 1933 : see also a number of articles by J. R. Hicks, viz., "Gleichgewicht und Konjunktur" in *Zeitschrift für Nationalökonomie*, Vol. IV, No. 4, 1933, pages 441 *et seq.* ; "A Suggestion for simplifying the Theory of Money" in *Economica*, February 1935, page 1 ; and "Mr. Keynes' 'General Theory of Employment, Interest and Money'" in *Economic Journal*, Vol. XLVI, June 1936). It should not, however, be forgotten that even the theories of authors who do not usually refer explicitly to expectations and anticipations can, and should, be interpreted in terms of expectation, as the authors in question are themselves often well aware (*cf.*, for example, Hayek's article "Preiserwartungen, monetäre Störungen und Fehlinvestitionen" in *Nationalökonomisk Tidskrift*, Vol. 73, pages 176-191—French translation "Prévision de prix, perturbations monétaires et faux investissements" in *Revue des Sciences économiques*, 1935). Professor Morgenstern has a trenchant analysis of the problem of expectations and anticipations in his *Wirtschaftsprognose, eine Untersuchung ihrer Voraussetzungen und Möglichkeiten*, Vienna, 1928, and his article "Vollkommene Voraussicht und wirtschaftliches Gleichgewicht" in *Zeitschrift für Nationalökonomie*, Vol. VI, Vienna, 1935, pages 337-358.

<sup>2</sup> The reference in this case is to prices : but what is true of prices is equally true of other factors in economic decisions. In perfectly competitive circumstances, price is the only factor which the producer has to forecast. In monopolistic circumstances, it is rather the "demand" than the "price" with which he is concerned, since the price is not in such case independent of the action of the producer.

With the introduction of the element of expectation, uncertainty enters the field. Future events cannot be forecast with absolute precision; and the farther they are distant in the future, the greater the uncertainty, and the greater the possibility of unforeseen and unforeseeable disturbances. Every economic decision is part of an economic plan which extends into the more or less distant future. In principle, there is therefore always an element of uncertainty in every activity. There are, however, certain cases where the element of uncertainty is especially great and conspicuous, such as the case of investment of resources in long processes and durable plant and the provision of funds for these purposes. The longer the processes in which capital is to be sunk, and the more durable the instruments and equipment to be constructed, the greater the element of uncertainty and risk of loss.

Naturally, economic actions and reactions in such cases are less rigidly determined by observable facts than in other cases. It is therefore mainly here that the "psychological" theories make their essential contribution. Optimism and pessimism are introduced as additional determinants. An attitude of optimism is an attribute of the prosperity phase of the cycle, and an attitude of pessimism an attribute of the depression; and the turning-points are marked by a change from optimism to pessimism and *vice versa*.

What do these new elements add to the picture of the expansion and contraction process which has emerged from the analysis of the "non-psychological" theories reviewed so far? If the psychological argument that during the upswing people take a more optimistic, and during the downswing a more pessimistic, view meant no more than that people invest more freely during the upswing and are reluctant to invest during the downswing, it would add nothing at all to the picture of the upswing and downswing as drawn by the monetary over-investment theory. But the psychological theories mean, of course, more than that. Optimism and pessimism are regarded as causal factors which tend to induce or intensify the rise and fall of investment which are characteristic of the upswing and downswing respectively. But are optimism and pessimism really separate

factors definitely distinguishable from those analysed in the non-psychological theories of the cycle? The factors and forces making for cumulative expansion may be defined, broadly speaking—as they are defined in these theories—as low interest rates and/or the appearance of new investment opportunities as a result of inventions, changes in demand, etc., which are themselves the consequences of growth of population, the need for replacement of outworn equipment and so on. An increase in investment, however brought about, leads to an inflow of new money into the circulation and so to a rise in the money demand for goods in general which in turn stimulates investment: the process is cumulative. An indispensable condition is of course an elastic money supply. What now is changed, if to this list of factors optimism and pessimism are added as intensifying elements? If all that is meant is that a fall in the rate of interest, or the appearance of an invention requiring for its application a heavy investment of capital, or a rise in demand makes people anticipate better returns from particular investments, there is no new element in the mechanism as pictured by, say, the monetary over-investment theory, since to the latter too profits can only mean *expected* profits.

But the introduction of optimism and pessimism as additional factors signifies more than this. It implies that the connection between a fall in the interest rate and a change in the other objective factors, on the one hand, and the decision of the entrepreneur to invest more, on the other hand, is not so rigid as the “economic” theories sometimes maintain. If in a given situation the rate of interest falls, or demand increases, or there is a change in the technological situation (exploitation of an invention or introduction of an innovation), it is not possible on the basis of these data alone to predict the strength of the entrepreneurs’ reactions or the extent to which they will increase investment. It is true, such phrases as “the degree of optimism” or “a change in optimism” are omnibus formulæ which conveniently cover a number of other factors such as the general political situation and other elements likely to influence the outcome, though to an unknown extent. It should be clearly recognised

that, while it is true that developments are not determined wholly by the objective factors with which the non-psychological theories are concerned, the introduction of the determinants “optimism” and “pessimism” makes no positive contribution to the explanation of the cycle so long as the optimism and pessimism remain purely psychological phenomena—*i.e.*, states of mind of the entrepreneurs (or other members of the economic community with whose behaviour the theory is concerned). We cannot observe states of mind; but it is possible to make certain observations from which states of mind or changes of mind can be inferred. It is at this point that the “psychological” theories have a positive contribution to make.

What observable factors are there (other than “*Irrational*” those which have already been taken into account *influences* by the “non-psychological” theories) that go to *stressed by* make people optimistic or pessimistic—*i.e.*, that “*psychological*” stimulate or discourage investment? There is in *theorists.* the first place the fact that, in a period when demand and production are rising in many branches of industry, producers in branches which have not yet felt an increase in demand are inclined to expect one. The connection between the objective factors (interest rate, etc.) with which the non-psychological theories are concerned and the volume of investment is, as it were, loosened. The response of total investment to changes in the objective factors becomes stronger than “rational” economic considerations would suggest. Professor PIGOU, in this connection, speaks of “errors of optimism”. LAVINGTON likens business-men who infect each other with confidence and optimism to skaters on a pond. “Indeed, the confidence of each skater in his own safety is likely to be reinforced rather than diminished by the presence of numbers of his fellows. . . . The rational judgment that the greater their numbers the greater will be the risk is likely to be submerged by the mere contagion of confidence which persuades him that the greater the numbers the more safely he himself may venture.”<sup>1</sup>

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<sup>1</sup> *Op. cit.*, pages 32 and 33.

Another point to which the psychological theories direct attention is the fact that, when demand and prices have continued for a while to rise, people get into a habit of expecting more and more confidently a further rise of equal or approximately equal extent—that is to say, they project current experience too confidently into the future. All this leads them to an excessive valuation of capital assets. As Mr. KEYNES says : “ It is an essential characteristic of the boom that investments which will in fact yield, say, 2% in conditions of full employment are made in the expectation of a yield of, say, 6%, and are valued accordingly.”<sup>1</sup>

The theorists who stress the psychological factor, especially Professor PIGOU and Mr. KEYNES, point out, furthermore, that the discovery of errors of optimism gives birth to the opposite error of pessimism. Professor PIGOU speaks of “ the mutual generation of errors of optimism and pessimism ”.<sup>2</sup> The above passage from Mr. KEYNES continues : “ When disillusion comes, this (optimistic) expectation is replaced by a contrary ‘ error of pessimism ’, with the result that the investments which would in fact yield 2 % in conditions of full employment are expected to yield less than nothing; and the resulting collapse of new investment then leads to a state of unemployment in which the investment, which would have yielded 2% in conditions of full employment, in fact yields less than nothing.”<sup>3</sup>

Professor PIGOU points out that “ the extent of the revulsion towards pessimistic error, which follows when optimistic error is disclosed, depends, in part, upon the magnitude of the preceding optimistic error. . . . But it is also affected by what one may call the detonation which accompanies the discovery of a given amount of optimistic error. The detonation is greater or less according to the number and scale of the legal bankruptcies into which the detected error explodes.”<sup>4</sup> If the enterprises which are making losses have been financed by the entrepreneurs with

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<sup>1</sup> *Op. cit.*, page 321.

<sup>2</sup> *Industrial Fluctuations*, Chapter VII.

<sup>3</sup> *Op. cit.*, page 322.

<sup>4</sup> *Op. cit.*, page 94.



their own money, the repercussions are less serious than in the case where they have been financed by borrowing, especially by borrowing from the banks.

### § 3. SUMMARY

We can now sum up our analysis of the contribution of the psychological explanation of the *with other theories.* cycle and its relation to the non-psychological explanations.

The “ psychological ” theorists are writers who lay more stress on—or attribute more independent influence to—the “ psychological ”, as opposed to the “ non-psychological ”, factors than other theorists. The argument that optimism or pessimism is a contributory factor in the process of expansion or contraction simmers down to the proposition that, for a number of reasons, the reaction of investment to a change in the determinant objective economic factors (interest rate, flow of money, etc.) is likely to be stronger than the analysis of the purely “ economic ” theories would at first sight suggest.

Mr. HAWTREY, in his review of PIGOU’s *Industrial Fluctuations*,<sup>1</sup> endeavours to make the point that optimism and pessimism are wholly dependent on the policy of the banks. People are optimistic, he says, so long as credit expands and consequently demand rises : they become pessimistic when credit is contracted and demand flags. On the whole, this is probably correct. But the fact remains that the reaction of activity (*i.e.*, mainly, of investment activity) to given changes in interest rates and in the demand for consumers’ goods, etc., may be different under different circumstances. The “ psychological ” explanations seek to analyse certain of the more elusive circumstances on which the strength of the reaction depends. In terms of the demand-and-supply schematism of investible funds, we may say that the reference to the psychological factor or factors is to be represented by an accentuation of the shift of the demand curve to the left during the depression and to the right during the upswing of the cycle.

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<sup>1</sup> *Trade and Credit*, page 168.

There is one other important point. The psychological theories as such are not concerned with specific assumptions as to the nature of the maladjustment which brings about the collapse of the boom. The result of the optimistic error with which the psychological theories are concerned may be shortage of capital, insufficiency of consumers' demand or horizontal misdirection of capital : the "psychological" theory is compatible with any or all of these hypotheses.<sup>1</sup>

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<sup>1</sup> In the passage quoted, Mr. Keynes seems to suggest that no actual losses are needed to make a boom collapse—*i.e.*, that no maladjustment in the structure of production need occur (where by maladjustment is meant an arrangement of the productive structure which implies losses at least for some firms). A fall in profits, he seems to argue, may be sufficient to make the boom collapse, if, for example, it creates expectations of a further fall in profits to zero or less than zero. This interpretation of Mr. Keynes' theory presents, however, great difficulties, inasmuch as, in his *Treatise on Money*, he defines an entrepreneur making losses as one whose remuneration has fallen to such a level as to induce him to restrict output. The difficulty is perhaps purely verbal, due to a change in his definition of loss and profit. In any case, the idea is not sufficiently developed to admit of fruitful discussion.

## CHAPTER 7

HARVEST THEORIES.  
AGRICULTURE AND THE BUSINESS CYCLE

## § 1. INTRODUCTION

The relation between changes in the agricultural situation and industrial fluctuations is much more complicated than many people think. There exist a good many theories on the subject, which are not easy to reconcile though all are either based on, or backed by, statistical research. One group of theories, which includes the writings of W. S. JEVONS,<sup>1</sup> H. S. JEVONS,<sup>2</sup> and H. L. MOORE,<sup>3</sup> seeks to account for the periodicity of business cycles by establishing the existence of a similar periodicity in agricultural output. The chain of causation runs from cosmic influences to weather conditions, from weather conditions to harvests, and from harvests to general business.

The authors of these theories are generally willing to admit that the effects of weather-induced harvest variations may be

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<sup>1</sup> *The Solar Period and the Price of Corn*, 1875 ; *The Periodicity of Commercial Crises and its Physical Explanation*, 1878 ; and *Commercial Crises and Sun-spots*, 1879—all reprinted in *Investigations in Currency and Finance*, 2nd edition, London, 1909.

<sup>2</sup> *The Causes of Unemployment, The Sun's Heat and Trade Activity*, London, 1910 ; and "Trade Fluctuations and Solar Activity" in *Contemporary Review*, August 1909.

<sup>3</sup> *Economic Cycles : their Law and Cause*, New York, 1914, and *Generating Economic Cycles*, New York, 1923.

partially or totally offset by the effects of other causes, whether causes outside the economic system (wars, revolutions, inventions, currency depreciations and so forth) or causes inherent in the economic system. On the other hand, these factors may also operate to reinforce the harvest variations. W. S. JEVONS suggested on one occasion<sup>1</sup> that "if, then, the English money market is naturally fitted to swing or roll in periods of ten or eleven years, comparatively slight variations in the goodness of harvest repeated at like intervals would suffice to produce those alternations of depression, activity, excitement, and collapse which undoubtedly occur in marked succession".

Professor H. S. JEVONS believes that the industrial system and the emotional outlook of the business community take longer to revolve than the period of a complete harvest cycle, and that the impulses liberated in two or more harvest cycles accumulate accordingly until a major business cycle is generated.

One consideration which tells against those theories is the absence of agreement as to the exact period of crop variations. W. S. JEVONS based his argument on a crop-cycle of ten and a-half years, Professor H. S. JEVONS on a period of three and a-half years, and Professor H. L. MOORE on an eight-year period. It is, however, conceivable that the same agricultural series may contain fluctuations, or tendencies to fluctuate at intervals of different lengths (*i.e.*, shorter cycles superimposed on longer ones) as also, for that matter, that general business should exhibit a similar tendency. Moreover, different branches of agricultural output show fluctuations of different periods. The crop-fluctuations which had the greatest effect on general business in the eighteenth and early nineteenth centuries may not be same as those which have had the greatest effect in succeeding epochs. The attempt to find an explanation of the changing periods of business cycles on lines consistent with their agricultural origin is not therefore hopeless.

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<sup>1</sup> In a paper read to the British Association in 1875 on "The Solar Period and the Price of Corn" (in *Investigations in Currency and Finance*, page 185).

It is not necessary, in order to establish a causal connection between agricultural output and the business cycle, to assume a cyclical movement in agricultural output itself. Fluctuations in crop-yield or in the output of live-stock and animal products may be regarded as analogous to inventions, wars, earthquakes, etc., which appear at irregular intervals, and set in motion cumulative processes of expansion or contraction in the industrial system, or alternatively reinforce or retard a concurrent expansion or contraction. Harvest fluctuations which do not happen to coincide with a turning-point in the business cycle will tend rather to disturb the periodicity of the cycle than to determine it.

The above may be presumed to be the view taken by Professor PIGOU<sup>1</sup> and Professor ROBERTSON,<sup>2</sup> since, though they treat harvest variations as important potential causes operating to precipitate cumulative upward and downward movements, they attribute to these cumulative processes a life of their own with periods determined—in part—by psychological and other factors and in any case with no relation to the periods of crop-fluctuations. Professor SPIETHOFF,<sup>3</sup> for his part, speaks of good harvests and innovations as two amongst many possible initiating factors of industrial expansion. But none of these writers can be represented as putting forward an “agricultural theory” of the trade-cycle. They do not ignore the agricultural factors; but they combine them with other factors in integrated but flexible schemes, in which allowance is made for various processes of response—monetary, psychological and technical.

There is a third view, held mainly by American economists such as Professors A. HANSEN<sup>4</sup> and J. M. CLARK,<sup>5</sup> which denies that fluctuations in agricultural output are among the causes of the cyclical fluctuation of business. Agriculture, these writers say,

<sup>1</sup> *Industrial Fluctuations*.

<sup>2</sup> *A Study of Industrial Fluctuation and Banking Policy and the Price Level*.

<sup>3</sup> Article “Krisen” in “*Handwörterbuch der Staatswissenschaften*.”

<sup>4</sup> “The Business Cycle in its Relation to Agriculture” in *Journal of Farm Economics*, 1932.

<sup>5</sup> *Strategic Factors in the Business Cycle*.

is not an active but a passive element. The very inelasticity of agricultural supply exposes the farming community to considerable instability of income as a result of changes in demand arising out of trade fluctuations brought about by internal forces of the business economy. In the words of Professor HANSEN, agriculture is the "football of business".

These three points of view are not necessarily *Compatibility* mutually exclusive. It is possible to reconcile a *of different* general lack of response on the part of agricultural *theories.* output to changes in demand with occasional or periodic spontaneous variations which may have an effect on business. The writers of the second and third groups referred to are probably not so much at odds on the theory as on the statistical question whether the influence of agricultural fluctuations can in fact be traced in business indices.

It is a more serious shortcoming of these "agricultural" theories that they are not agreed on the important point as to whether plentiful harvests are correlated with prosperity and poor harvests with depression, or the other way round; and their divergence in this respect is symptomatic of a fundamental disagreement as to the channels by which the influence of agricultural fluctuations is brought to bear on other departments of economic life.

We have therefore, if we are to investigate the problem systematically, to consider the various possible ways in which (1) agricultural fluctuations can influence general business and (2) industrial fluctuations can influence agriculture.

## § 2. HOW AGRICULTURAL FLUCTUATIONS INFLUENCE INDUSTRY AND TRADE

Here, as in so many departments of economic *Assumption* theory, it is necessary to begin with the consideration of a closed economic system. The world *of a closed* economy as a whole has to be brought under *economy.* review before it is possible to discuss the relationship of parts of the whole (*e.g.*, single countries) with the rest of the world. The following enumeration of the repercussions

(through all the different channels) of fluctuations in agricultural output relates, therefore, in the first instance (sections A to H) to a self-sufficient economic system. In section I, the position is considered from the standpoint of the external trade relations of an individual country.

Professors PIGOU and ROBERTSON link up harvest A. "Real" variations and industrial fluctuations by arguments *elasticity* appropriate to an economic system without a *theories*. common medium of exchange (*i.e.*, a barter economy), and then proceed to take account of the modifications introduced into the relationship by the fact that economic incentives present themselves in a money form.

The successive steps of the argument, as culled from various chapters of Professor PIGOU's *Industrial Fluctuations* and his *Theory of Unemployment*, seem to be as follows.

An exceptionally good harvest leads to a larger demand on the part of agriculturists in terms of agricultural produce for the products of industry.<sup>1</sup>

In so far as this raises the real income of the community, it will lead to an increase in the supply of new capital from savings, a downward tendency in interest rates and an increase in the demand for labour in terms of wage-goods.<sup>2</sup>

In so far as it involves an increase in the employers' expectations of the yield of labour in terms of goods in general, the rise in the agricultural demand for industrial products will increase the employers' demand for capital and *pro tanto*—whether the demand is satisfied out of stocks or savings—the demand for labour in terms of wage-goods.<sup>3</sup> Whether the big harvest will in fact increase the employers' expectations of the "real" yield of labour depends, according to Professor PIGOU, on the "elasticity of the general demand for agricultural produce". He writes: "If the general demand for agricultural produce is highly inelastic—*i.e.*, has an elasticity less than unity—the enlarged amount of agricultural produce obtainable" for a unit of industrial output represents,

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<sup>1</sup> *Industrial Fluctuations*, 2nd ed., Chapter IV, page 41.

<sup>2</sup> *Ibid.*, Chapter III, page 20.

<sup>3</sup> *Ibid.*, Chapters III and XI.

“not an enlarged, but a diminished amount of things in general”. In this case there will not be any increased willingness to save nor yet any increased expectation of yield to induce employers to borrow more for the purpose of increasing their real demand for labour.<sup>1</sup>

Supposing, however, that the general demand for agricultural products is elastic, the increase in the demand for labour in terms of wage-goods will lead to more employment for the reason that the supply-schedule of labour, thanks to the rigidity of wage rates, is highly elastic.<sup>2</sup>

So far, the analysis proceeds on the assumption of a purely barter economy. The following is Professor PIGOU's adaptation of the argument to a money economy.

The additional borrowing requirements of the employers, induced by their improved expectations of yield, are satisfied partly by the banks. The result is a monetary expansion of a cumulative nature which, in a variety of ways, enhances the demand for labour in terms of wage-goods and thus increases industrial output.<sup>3</sup>

Since workers under the influence of the “money illusion” are willing to accept lower real wages if they appear in the shape of rising prices, the rise in prices which results from monetary expansion has the effect of increasing the supply of labour available at a given real wage. Hence, industrial activity responds more sharply to an increase in the real demand of the agriculturists.<sup>4</sup>

This argument is obscured by the ambiguity of the phrase “elasticity of the general demand for agricultural produce”. Normally, we think of an elasticity of demand in terms of money; but it might be translated into “real” terms as relating to the quantity of industrial produce, the use or consumption of which the industrial population as a whole is willing to forgo in exchange for varying quantities of agricultural produce, the total production of industrial produce remaining unchanged.

<sup>1</sup> *Industrial Fluctuations*, 2nd ed., page 41.

<sup>2</sup> *Ibid.*, Chapter II, page 20, and Chapter XX.

<sup>3</sup> *Ibid.*, Chapter III, page 33, Chapters XVI and XVII, etc.

<sup>4</sup> *Theory of Unemployment*, Part IV and Part V, Chapter IX.



This would seem the most natural interpretation of the phrase. But an examination of the footnote on page 42, and of the whole discussion in Chapter V, of PIGOU's *Industrial Fluctuations* shows that PIGOU supposes any increase or diminution in the amount of industrial goods offered for agricultural produce to represent an equivalent increase or diminution in the production of industrial goods. In this case, "elasticity of demand for agricultural produce" seems to relate to the total amount of effort or activity industrialists will undertake to produce goods for their own consumption and for exchange against varying quantities of agricultural produce. Thus, by assuming the elasticity of the industrialists for agricultural products in terms of effort as given, Professor PIGOU assumes a knowledge of how total industrial output changes in response to changes in the harvest. But it is this magnitude which the theory is concerned to discover. It is the unknown quantity. It must not be assumed in advance.

It is only when interpreted in the first sense mentioned above—viz., in terms of money (or its complement in real terms)—that the phrase "elasticity of demand" can play a useful rôle in the explanation of the repercussions on industry of agricultural fluctuations. But, as soon as "elasticity of demand" is thus interpreted, we are confronted with the difficulty that movements in the *money* demand for industrial labour vary in the contrary direction to the "*real*" demand in the sense in which the term "*real*" is employed by Professor PIGOU. He says that the increased supply of agricultural produce represents an increased "*real*" demand for industrial produce (and gives rise to an increased "*real*" demand for labour) only if the demand for agricultural produce is elastic. But these are the very circumstances in which the *money* demand for industrial output will diminish, since a greater proportion of expenditure goes in such case to agricultural produce: and, since wage-earners respond primarily to the money demand for labour, an *elastic* demand for agricultural produce in terms of money and of goods already produced means an *inelastic* demand in terms of effort and employment.

Similar difficulties and ambiguities are encountered in connection with Professor ROBERTSON's treatment of the problem in his *Banking Policy and the Price Level*. He enquires by what process,

and with what price accompaniments, a given response in industrial output (represented by iron) to enhanced agricultural output (represented by wheat), such as would take place in barter conditions, will be reached under the operation of this or that policy on the part of the monetary authority. He realises, and expressly states, that "iron-makers" react more readily to increased money receipts than to falling prices in the objects of expenditure: but, for him, the money demand for iron depends only on the *effort*-elasticity of the demand for wheat and the general price-level as determined by monetary policy. He appears to overlook the fact that the buyer's elasticity of demand for wheat in terms of iron—in the absence of any change in the total money demand—influences the money demand for, and supply of, iron and *pro tanto* the effort-elasticity of the iron-makers' demand for wheat.

In a monetary economy, it is never possible to take the effort-elasticity of the demand for a particular commodity—or, generally, of the demand of industry as a whole for agricultural produce—as a psychological datum, as it is convenient to do in the case of the elasticities of buyers' demand for a single good. Producers are stimulated almost entirely by monetary incentives, so that a long process of analysis by progressive stages, coupled with assumptions as to the operation of the monetary factors throughout, is required if it is desired to arrive at conclusions as to the actual effort-elasticity of demand in any given case. It is not therefore permissible, in order to indicate the probable consequences on industry of agricultural fluctuations, to assume a particular effort-elasticity from the start; for this is equivalent to assuming the solution of the problem. Nor is it permissible to estimate the effort-elasticity of demand from actual experience of how industrial production has responded to agricultural fluctuations, and to proceed to treat the estimate as a relatively stable psychological function, independent of monetary conditions.

Changes in agricultural output of all sorts exercise  
*B. Influence on* a dominating influence over those industries which  
*industries using* utilise agricultural raw material, such as the food  
*agricultural* and textile industries, as also the industries engaged  
*raw materials.* in the handling and transportation of the crop or  
 animal produce.

The nexus between an industry and its source of raw materials is necessarily very close. In the absence of surplus stocks which can be drawn on, a short crop will restrict the activity of the industry which it serves. A bumper crop will lower the price of the raw material in relation to that of the finished product, till either the manufacturers decide to absorb it all by increased output or the holders decide to keep the surplus in store. In any case, the activity of the later stages will be increased, because the holding of stocks never completely offsets harvest fluctuations.

Transport concerns which are accustomed to handle agricultural produce are in much the same position *vis-à-vis* crop fluctuations as are the industries utilising the produce as raw material.

In dealing with the "effort-elasticity" theories, it

C. *Influence* was pointed out that the supply of labour varied  
*on real* rather with the money demand for labour than with  
*wages.* the demand in terms of goods and services. But  
the "real" equivalent of the money wage is not  
something quite irrelevant to the incentive to work or to accept  
employment. If, for example, food prices fall, it may be easier  
to reduce money wages or to prevent them from rising, and *vice*  
*versa* if food prices go up. This is particularly likely to be the  
case where wage-scales are based on cost-of-living indices. On  
the whole, however, this factor is probably of little practical  
importance in the short run.

There is another channel by which the industrial

D. *Migration* labour supply may conceivably be influenced by  
*of labour* good and bad crops. Most crops taken indivi-  
*between town* dually, and certainly agricultural production as a  
*and* whole, have to face an inelastic demand (in terms  
*country-side.* of money) on the part of consumers who have the  
choice between agricultural and non-agricultural  
commodities. Therefore, good crops mean low farm incomes.  
It is conceivable that a fall in agricultural incomes may give  
rise to an exodus of labour from agriculture to industry. The  
process is known to work in the opposite direction in many  
countries, where the agricultural labour supply varies with  
industrial prosperity. The converse movement, though rarer, is  
not unknown.

The more contentious questions arise when we  
*E. Effects on non-agricultural consumers' goods industries.* come to deal with the effects of crop fluctuations on industries not utilising agricultural raw materials. These may be divided for convenience into consumers' goods industries and producers' goods industries, or again into industries serving the agricultural population and industries serving the nonagricultural population. It may fairly be assumed that, except in advanced phases of expansion, the elasticity of supply of goods in face of an increase in the money demand is considerable.

The effect of a big harvest on non-agricultural consumers' goods industries will depend on whether the money demand for consumers' goods of agricultural origin is elastic or not. The *less* elastic it is the *more* probable it is that the big harvest and the consequent fall in the price of food will result in a diversion of demand from food to non-agricultural goods, inducing a rise in the supply of the latter, the extent of which depends on supply conditions. The same is true, *mutatis mutandis*, of poor harvests.

While there may be a general tendency for crop  
*F. Farmers' purchasing power.* changes to affect non-agricultural consumers' goods industries as a whole in a given direction, a distinction must be made between those which supply the agricultural population and those which supply the non-agricultural population. It is often asserted that changes in agricultural output affect general business by changing the purchasing power of the agriculturist. Good harvests either increase or diminish the farmer's income, according as the elasticity of demand is greater or less than unity, and so affect the prosperity of the branches of industry which serve his needs. It is clear, however, that this argument in itself proves nothing. For what the farmer loses in purchasing power other people are bound to gain, and *vice versa*. Business flags in the case of the industries supplying the farmer, but is brisk in the case of the industries supplying other people. The net result of this redistribution of purchasing power will depend on the concrete situation, the phase of the trade cycle, the credit situation in the various countries and localities affected by the redistribution, and so on.

It is important to consider the effect of crop fluctuations on investment both because of the initial effect on the activity of investment-goods industries and because of the indirect effect on monetary expansion or contraction in subsequent periods.

*G. Effects on investment.*

Roughly speaking, the following may be expected to be the effects of a good harvest, for which the demand in money terms is inelastic :

- (a) A fall in investment by agricultural producers;
- (b) A rise in investment by industries transporting and utilising the crop;
- (c) A rise in investment by consumers' goods industries not utilising agricultural materials, particularly those not serving the agricultural population;
- (d) A change in the amount of investment in holding stocks of agricultural produce. This aspect has recently been stressed by Mr. KEYNES.<sup>1</sup> A distinction must be made between the initial effect occurring immediately after the harvest (which will probably be a fall in the value, as distinct from the physical quantity, of stocks held as compared with a normal year) and the subsequent effect (which may be an increase in the value of the carry-over).

Strictly speaking, these movements refer less to investments than to the "tendency to invest", or the demand for investment funds. To what extent this demand will be satisfied, and the tendency to invest take the shape of actual investment, depends on the elasticity of the supply of investible funds in the various countries concerned. It is not impossible, for example, that a violent redistribution of incomes between agriculturists and others, accompanied by a flow of money from agricultural to non-agricultural countries, or *vice versa*, might ultimately result in a deflationary shock to the credit system, which would tend to neutralise any increased demand for investible funds that might be simultaneously engendered.

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<sup>1</sup> *The General Theory of Employment, Interest and Money*, pages 329 *et seq.*

Before any conclusions can be drawn as to the *H. Effects* further consequences of crop fluctuations on the *on saving*. industrial economy by way of cumulative monetary expansion or contraction, the effects on investment must be compared with the effects on saving. An excess of investment over saving would generate an expansion, while an excess of saving over investment would cause a contraction. Mr. J. H. KIRK<sup>1</sup> bases his conclusions as to the deflationary effects of big harvests on the tendency of consumers to save a part of the extra purchasing power accruing to them through the fall in agricultural prices. Obviously, no conclusion as to the net effect can be drawn *a priori* : but, in any concrete case, the attempt must be made to strike a balance between all the tendencies towards changes in investment and all the tendencies towards changes in saving. As was pointed out, tendencies towards increased investment, in conjunction with an elastic credit-supply, engender monetary expansion, while tendencies towards increased saving, if unaccompanied by increased investment, engender monetary contraction.

We may now pass from the analysis of the effects of fluctuations in the total crop of a self-sufficing economy on the industrial activity of that economy as a whole to an examination of the effects of fluctuations in the crop of a geographical subdivision of the total economy (a district or country) on the industrial activity of that subdivision.

The elasticity of demand for the crops of a single country (in terms of international money) is of course much greater than that for the crops of the world as a whole : and the smaller the country, and the more perfect the world market for the crops, the greater the elasticity of the demand. It is greater, for example, in the case of New Zealand than in the case of the United States of America, and greater in the case of wheat than in the case of most animal products. Thus, in many or most cases, an increase in the crop of one country, unaccompanied by any change in the crops of other countries, will result in an increase in the money

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<sup>1</sup> *Agriculture and the Trade Cycle*, London, 1933.

receipts of the agriculturists in the country concerned. (If the elasticity of demand is less than unity, agriculturists elsewhere will lose to a more than equivalent extent.) Furthermore, a given increase in the money receipts of the agriculturists will mean an even greater increase in the money receipts of the country as a whole, since the home population will be spending less than before on farm products and (probably) more than before on home industrial products, so that both the agriculturists and industrialists will rejoice in increased receipts—and that increase can only come from outside.

This initial increase in the receipts and incomes of the country which has been blessed by a good crop will provide an inflationary stimulus to the industry of that country (though we must take account of the continual "leakage" of purchasing power abroad). It will be gathered from the new considerations thus introduced in the argument that conclusions as to the general effect on world industry of a net world crop variation cannot be drawn from a comparison between the agricultural fluctuations of any given country and the industrial activity of that country. In the case of countries like Australia, New Zealand, Roumania, Argentine, Canada, etc., this is obvious; but it is often lost sight of, particularly in the case of the United States.

It will be apparent that the channels through  
*Summary.* which fluctuations in agricultural output (good and bad harvests) exercise their effect upon the economic system in general and industrial activity in particular are no other than those with which we have become familiar in the perusal of the various theories discussed in the earlier sections of this work. The several processes of monetary expansion and contraction originating in the varying demand for capital, of over-saving resulting from plenty, and of the dependence of investment on consumers' demand—to each of which a varying degree of importance is attached by the different schools of thought—are all relevant to the problem. There can be no "agriculture theory" of the cycle in the sense of an alternative to, say, the monetary theory or the over-investment theory any more than there can be an "invention theory" or an "earthquake theory". All that can be attempted in this direction is to bring out the importance of

agricultural fluctuations as one amongst other potential stimuli in the economic system. What has been said of agriculture and the trade cycle might be said with scarcely any modification of inventions and the trade cycle, or even of earthquakes or wars and the trade cycle.

It will be observed that no attempt has been made to strike a balance between the arguments for and against the proposition that good harvests are good for trade and bad harvests bad. On the whole, the arguments in favour of the proposition that good harvests have a stimulating effect dominate the literature on the subject, though the opposite view is not without support. There is of course very little doubt that a good harvest in a particular country tends to stimulate the business life of that country. The problem only becomes obscure when a completely closed economy is the object of study.

*A priori*, analysis cannot settle the question, because forces are released which pull in opposite directions; and only estimates of the quantitative importance of the different factors—effect on investment, effect on saving, effect on the credit structure, etc.—can supply a basis for judgment as to which tendency will prevail. Much probably depends on the phase of the business cycle in which the disturbance occurs. It is conceivable that a good harvest may exercise now a stimulating and now a depressing influence according to the phase of the cycle and the portions of the earth's surface and the world's population affected. Nor must it be too readily assumed that a good wheat crop and a good cotton crop have the same kind of effect. After it has been decided in all the different possible cases whether the influence of crop-fluctuations on general business is positive or negative and whether that influence is important enough to outweigh other influences operating simultaneously, it will still remain to consider to what degree crop fluctuations are cyclical and, if they are cyclical, to what degree they are spontaneous and independent of the general business cycle.



## § 3. INFLUENCE OF THE BUSINESS CYCLE ON AGRICULTURE

As each part of the economic system is to some degree sensitive to developments in all other parts, industrial fluctuations are bound to exercise a certain influence on agriculture. This influence operates through the demand for, and price of, agricultural produce on the incomes of the agricultural classes. If there was a fairly immediate and substantial reaction on the part of agricultural output to the movements in monetary demand, there would be no reason why the trade cycle should be regarded as a primarily industrial phenomenon. In fact, however, agricultural output is, on the whole, so unresponsive to money incentives that the trade cycle is often regarded as confined (so far as production is concerned) to industry, and in particular to that branch of industry which is not supplied with its raw materials by agriculture—namely, the production of durable and investment goods. It is not, however, altogether impossible that industrial fluctuations may influence agricultural output in the long run, though only after a period so long that the words “response” or “elasticity of supply” cease to have much meaning. The “responses” in such case will have the same effect as spontaneous variations in output. On the other hand, industrial fluctuations will affect both the demand for agricultural products and—to a lesser degree—their cost of production.

Many writers, including L. H. BEAN,<sup>1</sup> J. M. CLARK,<sup>2</sup> A. HANSEN<sup>3</sup> and J. H. KIRK,<sup>4</sup> recognise the important influence exercised on agricultural incomes by fluctuations in industrial activity accompanied by similar fluctuations in money demand in general. There is a

<sup>1</sup> E.g., “Post-War Interrelations between Agriculture and Business in the United States,” *U.S. Department of Agriculture, Bureau of Agricultural Economics* 1.9.Ec.752.Pa.

<sup>2</sup> *Strategic Factors in the Business Cycle*.

<sup>3</sup> “The Business Cycle in its Relation to Agriculture” in *Journal of Farm Economics*, 14 : 59-68, 1932.

<sup>4</sup> *Agriculture and the Trade Cycle*, Part I.

relationship of reciprocal causation (as will be shown in Part II of this work) between increasing supplies of effective money and increasing industrial activity; and the same holds true of the downswing. In view of the importance to consumers of products manufactured with agricultural raw materials, it is not surprising that part of the general rise and fall in *money* demand should be passed on to agriculture. But the process is tempered by two factors :

- (1) The demand for consumers' goods as a whole is more stable than the demand for all goods;
- (2) The demand for consumers' goods of agricultural origin is more stable than that for consumers' goods as a whole.

On the other hand, the inelasticity in the supply of agricultural output tends to make the fluctuations in demand greater, at least in the first instance, than they might otherwise be.

The close correlation between agricultural prices and industrial activity, due to the causal connection between industrial activity and the demand for agricultural produce, may be taken by the unwary as a proof that low agricultural prices and incomes, due presumably to agricultural over-production, are responsible for low industrial activity.

The cost items of agriculture are largely of agricultural origin; and to some extent they will vary with the demand for agricultural produce—the variation being only another aspect of the inelasticity of the supply.

To some extent, however, industry competes with agriculture for factors of production; and this competition may be so strong as to force a reduction of agricultural output when demand is high, and *vice versa*.

(1) With respect to the supply of implements and the investment funds for buying them, it seems probable that the farmers' increased desire to acquire instruments in good times will outweigh the competitive demand of industry for both of these things. The farmer can finance increased purchase in part from his own increased earnings.

(2) On the other hand, there is an important tendency in many countries for labour to be drained off from agriculture to industry during boom periods and to flow back during slumps.<sup>1</sup>

The above review of the possible interactions of agriculture and industry on one another cannot be said to yield a clear picture. Industrial crises may arise for monetary or other causes, and then work out their effects on agricultural incomes and—to a lesser extent, and by obscure channels—on agricultural output.

Spontaneous agricultural fluctuations may have a positive or a negative effect on the general business cycle and on monetary demand and may react back on agriculture through this channel. Lastly, variations, however caused, in the demand for and cost of agricultural produce may, after a time, give rise to variations in agricultural output which will act on industry like spontaneous disturbances, and set up a vicious circle of expansion or contraction.

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<sup>1</sup> See, especially, Gustav Cassel : *The Theory of Social Economy*, Vol. II, Book IV, Chapter XV, § 65.

## CHAPTER 8

SOME RECENT DISCUSSIONS  
RELATING TO THE THEORY OF THE TRADE CYCLE

## § 1. INTRODUCTION

The greater part of the literature to be discussed in this chapter emanates from, and centres around, Mr. KEYNES' *General Theory of Employment, Interest and Money*. It is not all business-cycle theory in a strict sense, but rather general economic theory dealing with analytical tools which may be used for trade-cycle analysis as well as for other purposes. To a large extent, the theories to be discussed are not even of a dynamic nature, but are static-equilibrium theories. (This point will come up for detailed discussion in § 6 of this chapter.)

For a number of reasons, it is very difficult to review these theories. First, they are comparatively young and have not yet found anything like a definitive formulation. They are still in the process of development and clarification; there exist, and continue to appear, versions<sup>1</sup> which are by no means identical in all respects. The points at issue are frequently very subtle, and the argument necessarily becomes complicated and involved.

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<sup>1</sup> Cf. mainly contributions by various writers to recent issues of the *Economic Journal*, *Econometrica*, *Economica*, *Zeitschrift für National-ökonomie*, *Quarterly Journal of Economics*, etc.

Secondly, these theories suffer from the fact *Differences in terminology versus differences in substance.* that their authors have not been able to make clear in all cases whether apparent differences between their views and those of other writers rest on different empirical assumptions or only on a different usage of terms; in other words, whether differences are of a material kind or of a purely terminological nature.

There can be no doubt that, in recent years, the discussions on saving and investment and the possibility of their being unequal, on hoarding, liquidity-preference and the rate of interest, and similar topics, have made it increasingly evident that purely verbal misunderstandings and slight differences in the definition of terms have played a very great rôle.<sup>1</sup> The exaggerated impression of importance which prevailed with respect to the real (as against purely terminological) differences between different schools of thought, especially between what some writers<sup>2</sup> like to call the "classical" and the "modern" view, has already been modified. But it is safe to assume that this process of terminological clarification is not yet completed, and it is hoped that the present chapter will do a little to hasten it.

Even in those instances where the new theories amount to nothing more than a terminological innovation and cannot be said to be in material contradiction to the traditional views, they have sometimes served a useful purpose, by bringing to light hidden implications in the older theoretical schemes and forcing the propounders of "rival" theories to make all their assumptions clear and explicit.

All this will be illustrated in the following sections.

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<sup>1</sup> Professor Robertson has recently made an attempt at separating terminological from substantial differences. Cf. "A Survey of Modern Monetary Controversy" in *The Manchester School*, Vol. 9, No. 1, April 1938.

<sup>2</sup> Cf., for example, A. P. Lerner: "Alternative Formulations of the Theory of Interest" in the *Economic Journal*, Vol. 48, June 1938, *passim*.

§ 2. SAVING AND INVESTMENT<sup>1</sup>

In preceding chapters, we have repeatedly had occasion to speak of saving and investment, and *Everyday* differences between them, without giving a precise *meaning of S* definition of these terms. The reason is that the *and I* writers whose theories have been reviewed have *ambiguous.* refrained from giving careful definitions of the terms, consistent with the use to which those terms are put. They evidently thought they could safely rely on the everyday meaning of these terms.

The discussions in recent years have clearly shown that this is not the case. Not only is the everyday meaning of these terms not unambiguous—different writers interpret it in different ways—but also it has been demonstrated that one particular definition, which it is fair to call a good *prima-facie* formulation of the everyday meaning of those terms, makes it impossible to speak of differences between saving and investment, because, on that definition, *S* and *I* are not only equal by definition, but are in reality the same thing.

In the Neo-Wicksellian literature and related *Neo-Wick-* writings reviewed above (Chapter 3) under the *sellian* title of “The Over-investment Theories”, it is *usage of S* usual to speak of differences between *S* and *I*. *and I.* Phrases such as the following occur again and again : “Investment may be financed, not only out of (voluntary) saving, but by inflation”, “out of newly created money”, “out of hoards”. Conversely : “Not all the current savings need be invested”, “a part of them may go into hoards”, “may disappear in the banking system”, “may be used for repaying bank loans” and thus “run to waste”.

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<sup>1</sup> In the following pages, we shall frequently use the following symbols : *S* = Saving, *I* = Investment, *Y* = Income, *C* = Consumption.

Equality of  $S$  and  $I$  has been used as a criterion of equilibrium.<sup>1</sup> Any divergence between  $S$  and  $I$  means a disruption of equilibrium. If  $I$  exceeds  $S$ , we get inflation; an excess of  $S$  over  $I$  means deflation. Prosperity periods are caused, or at least characterised, by an excess of  $I$  over  $S$ ; depression periods, by an excess of  $S$  over  $I$ . This language is irresistibly convenient and seems to express very realistically what actually happens during the upswing and the downswing of the cycle respectively.

It has, however, been questioned by Mr. KEYNES *Mr. Keynes'* and his followers.<sup>2</sup> Why is it considered fallacious? *equality of* That is very simple to explain. We have only to *S and I.* reflect for a moment on what we really mean by  $S$  and  $I$ . Mr. KEYNES' definitions are these: For the economy as a whole—just as for any individual—saving is that part of total income which is not spent on consumption:  $S = Y - C$ . Investment is that part of total output (in value terms) which is not consumed:  $I = \text{Output} - C$ . On the other hand, income of society as a whole is defined as the value of output. Therefore  $I = Y - C$ . Hence,  $S = I$ .<sup>3</sup>

If we accept these definitions, which appear *prima facie* to correspond quite well to the everyday meaning of the terms,  $S$  and  $I$  are necessarily equal over any period of time, because they are identically defined: both of them as  $Y - C$ . It then becomes nonsensical to speak of, or to imply, differences between them.

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<sup>1</sup> The use of the equality of saving and investment as an equilibrium condition has been ably criticised by W. Fellner in his article "Saving, Investment and the Problem of Neutral Money" in *Review of Economic Statistics*, Vol. XIII, November 1938.

<sup>2</sup> See especially: Keynes, *General Theory*, *passim*; A. P. Lerner, "Saving equals Investment" in *Quarterly Journal of Economics*, Vol. 52, February 1938, and "Mr. Keynes' General Theory of Employment" in *International Labour Review*, October 1936; Mrs. J. Robinson, *Introduction to the Theory of Employment* (London, 1937), especially pages 14 to 16, "The Hoarding Fallacy"; R. F. Kahn's review of the first edition of the present book in the *Economic Journal*, Vol. 47, 1937, page 671; and R. F. Harrod, *The Trade Cycle*, London, 1936, pages 65 *et seq.*

<sup>3</sup> *General Theory*, page 63.

Now a number of questions arise which will be *Controversial* taken up one after the other. *First*, some readers, *issues.* who are accustomed to speak of differences between  $I$  and  $S$ , would probably like to see how, in typical cases, the equality of  $I$  and  $S$  works out in detail. Such an analysis will reveal that the definitions given above are, after all, not always in harmony with the everyday usage of the terms.

*Secondly*, the question arises as to how  $S$  and  $I$  can be re-defined so as to make sense of the whole body of doctrine which speaks of differences between them. We shall see that this can be and has been done in several ways, and that it would be superficial to dismiss as meaningless all theories which imply a difference between  $S$  and  $I$ , even if some of the theorists in question may have carelessly defined them in such a way that they are necessarily equal.

*Thirdly*, it might be asked whether, if we adopt Mr. KEYNES' definitions,  $S$  and  $I$  are not, in reality, identical rather than necessarily equal. Do  $S$  and  $I$  not really denote, are they not only different symbols for, the same thing—unconsumed output? If that is so, why retain two terms? Why not drop the one or use them interchangeably?

Let us first do some exercises in the application *How  $S$  and  $I$*  of our definitions by discussing a few typical cases. *are equated* Assume that new investments are made either by *in the case* the Government or by private producers and that *of inflation.* they are financed by the creation of new money; for example, a factory or a railroad is being constructed. Suppose that there are unemployed workers and idle resources, so that total production can easily be expanded. The money is created by the banks and handed over to the entrepreneur (or the Government) either as a short-term loan or by purchasing long-dated securities, new ones or old ones which have so far been in the possession of the constructor of the railroad.

There is then a certain amount of (new) investment, but, if we adopt Mr. KEYNES' definitions of  $I$  and  $S$ , we are precluded from saying that these new investments have been financed by "inflation", instead of by "voluntary" saving.<sup>1</sup> According to

<sup>1</sup> I put "inflation" in quotation marks, because some writers would like to reserve the word "inflation" to such an increase in the quantity



Mr. KEYNES' and his followers' account of the matter, there must be somewhere savings corresponding to the amount of new investment. Where are they? The answer has been given most clearly by Mr. HARROD. "For a few days, the whole of the new net investment may be financed by those who receive the money; before they begin to spend that money, they save what they receive."<sup>1</sup> That is to say, the workers who are engaged in constructing the railroad are said to save the money which they receive, say, on Saturday until they spend it during the following week. If they keep all the money over night, they are said to have saved it. When they then gradually spend it on consumers' goods and consume these latter, they are said to dissave. The expressions "receiving" and "spending" are replaced by "saving" and "dissaving". But when people thus dissave, "the stocks of consumption goods will be depleted; this involves disinvestment."<sup>2</sup> So the new investment is first matched by saving and then cancelled by disinvestment;  $S$  is always equal to  $I$ . If, on the other hand, the production of consumption goods increases *pari passu* with the rising demand (by chance, or because producers have correctly foreseen the coming rise in demand), there is no disinvestment to cancel the original new investment; but, since the new money must always be somewhere, those people who hold it and have not yet passed it on are said to perform the necessary saving.

This account of the matter may seem strange; it is not usual to say that the savings which finance the construction of new capital are provided by the workers who are engaged in that construction job and not by those who provide the money which

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of money as leads to a rise, or to an "excessive" rise, in prices; they resent the use of the word for cases where the increased amount of money (or of monetary demand) is matched by an increase in the flow of goods and hence does not bring about a rise in prices. (Cf., for example, Mr. Kahn's review of the first edition of this book in the *Economic Journal*, Vol. 47, 1937, page 675, and my answer, *ibid.*, Vol. 48, 1938, pages 326 and 327.)

<sup>1</sup> *The Trade Cycle*, page 72.

<sup>2</sup> *Ibid.*, page 72. If prices of consumers' goods rise, the income and savings of the retailers go up.

is used to hire those workers. It is furthermore not in accord with the everyday usage of the terms to say that a man saves if he keeps his income in the form of money for a short time, owing to the simple fact that income is paid out discontinuously and spent more continuously. Only if it is kept unspent for longer than the usual income period, would one ordinarily say that it has been saved.

It must, however, be admitted that this unusual way of putting the matter follows from the literal application of the definition :  $S = Y - C$ . On Saturday evening, the income of the worker has increased; his consumption has not yet gone up; hence he has saved.<sup>1</sup> We have here an example where this *prima facie* plausible definition of  $S$  diverges clearly from the everyday meaning of the term.<sup>2</sup>

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<sup>1</sup> Mr. Lerner admits that "if we take artificial periods—say of ten minutes each—our definitions acquire an artificial flavour too. We would then have to say that in the ten-minute period in which a man receives his weekly wage, he saves (nearly) all of it, and that in all the other ten-minute periods in which he makes any expenditure, he dissaves" (*Quarterly Journal of Economics*, Vol. 52, 1938, page 304.) Mr. Lerner is, however, not right when he says that this artificiality disappears "if we take reasonable periods". Owing to the overlapping of periods, it never disappears completely. Moreover, the order of magnitude of the phenomenon in question is not correctly indicated by speaking of ten-minute periods.

<sup>2</sup> Sometimes another account of how  $S$  and  $I$  are equated has been given by followers of Mr. Keynes. For instance, Mrs. J. Robinson, in her *Introduction to the Theory of Employment*, puts the matter in the following way. Assume £1 per week is invested in housebuilding. Then make certain assumptions about the saving by the successive recipients of the money. "At each round", a certain proportion is saved by workers, profit earners, etc. On this assumption, the author constructs a series of acts of saving which add up exactly to the figure of investment outlay (pages 20 and 21). If by "round", turnover (change of hand) of money is meant, and if money does not circulate with infinite rapidity, this account of the matter proves the contrary to what it is intended to prove. For it takes time (strictly speaking, an infinite period of time under Mrs. Robinson's assumption) before the savings made at successive rounds add up to the total which is equal to the investment. What can be said is that there is a tendency for  $S$  to approach  $I$ , but owing (a) to the infinite length of these series and (b) to the overlapping of series set up by successive acts of investment, there can never, or only under very special assumptions, be an absolute equality of  $S$  and  $I$ .

Let us now consider the converse case, where *How S and I* money is withdrawn from circulation. Let us *are equated* assume that some people do not spend the whole of *in the case* their income, or more generally of their money *of deflation.* receipts,<sup>1</sup> and accumulate cash or idle deposits.

This has been conveniently expressed by saying that saving exceeds investment, because part of the savings are hoarded<sup>2</sup> instead of being invested.

According to Mr. KEYNES' definition of saving and investment, this way of describing the matter is no longer permissible. There can be no divergence between *S* and *I*. How are they then equated in this case? The answer is very simple. If some people save part of their income and keep it in liquid form, one of two things, or a combination of them, must happen : either goods which otherwise would have been sold accumulate and that constitutes investment which corresponds to the saving, or else sales are maintained at the former level by cutting prices, and the retailers suffer losses; these losses reduce their income—and hence their saving—by an amount equal to the original decrease in spending.<sup>3</sup> Hence, the original saving is cancelled by an equal decrease in saving (which, if we start from a position of zero saving, becomes negative—dissaving) by somebody else.

<sup>1</sup> Not all money received by an individual or a firm is (net) income. Part of the receipts of a producer is to be set aside for the replacement of capital, either of working capital or of fixed capital. In the first case, it is sometimes said that the money constitutes "working capital"; in the second case, we speak of "depreciation allowances" or "amortisation quotas". Naturally, the more durable a capital instrument is, the greater is the freedom and arbitrariness in distributing over the period of its life-time the corresponding amortisation allowances. Therefore many writers (for example, Mr. Hawtrey) define gross income inclusive of depreciation allowances. It should, however, not be forgotten that the transition from fixed to working capital is gradual and that, in principle, the same problems are involved in the replacement of either.

<sup>2</sup> It should be noted how easy it is to describe the phenomenon without using the words "saving" and "investment" in terms of receiving and spending of money.

<sup>3</sup> It could be objected that a retailer may cut his consumption and maintain his saving. This is quite true, but this further decrease in consumers' outlay (act of saving) can be treated exactly as the original one : it must again reduce somebody else's income and cannot give rise to a divergence between *S* and *I*.

It seems to be pretty clear that there is no real problem at issue between those who speak of a difference between  $S$  and  $I$  and those who maintain that  $S$  and  $I$  must be equal. Both schools speak about the same phenomenon in different terminologies. No statements about facts are disputed, for what may happen if some people reduce their rate of spending is *assumed* and can be described in a neutral terminology which avoids the word "saving" and uses instead the terms "receipt" and "expenditure" of money.

There remains, however, the question of how *Alternative saving and investment should be defined to enable definitions.* us to be consistent in speaking about differences between them.

Three sets of definitions under which  $S$  need not be equal to  $I$  will be discussed: first, Mr. KEYNES' definitions of  $S$  and  $I$  as given in his *Treatise on Money*; secondly, Professor ROBERTSON's "period analysis"; and, thirdly, the Swedish distinction between *ex ante* and *ex post* saving and investment, which is also made by Mr. HAWTREY.

It was Mr. KEYNES' *Treatise on Money* which made *The terminology* the catchwords "excess of saving over investment" of Mr. Keynes' and "excess of investment over saving" popular *Treatise on* in English literature.<sup>1</sup> Since, however, this piece *Money.* of verbal machinery of the *Treatise* has been abandoned by its author, we may be very brief. Mr. KEYNES defined income as exclusive of losses and profits.  $I$  was defined as the value of unconsumed output; and  $S$  as income minus consumption.<sup>2</sup> Hence, an excess of saving over investment

<sup>1</sup> Mr. Harrod, for example, speaks of "the new-fangled view, sponsored by Mr. Keynes in his *Treatise*, that the volume of saving may be unequal to the volume of investment" ("Mr. Keynes and Traditional Theory", in *Econometrica*, Vol. 5, 1937, page 75). On the Continent, the view that  $S$  and  $I$  need not be equal has been held at least since Wicksell, and, as Mr. Hawtrey has pointed out, in the classical English writings the equality of  $S$  and  $I$  has always been regarded as an equilibrium condition rather than an identity (although not all the implications of this view have been recognised or explored).

<sup>2</sup> The reader's attention might be called to the possibility of interpreting what Mr. Keynes was aiming at in terms of the Swedish *ex ante* and *ex post* analysis, which will be reviewed below (page 180).  $Y$  is clearly

was so defined as to mean losses; and an excess of investment over saving, so as to mean profits. In turn, profits and losses were defined as that amount by which actual entrepreneurial income exceeds, or falls short of, that level which would leave the entrepreneur under no inducement to change the rate of output and employment.<sup>1</sup> In consequence, entrepreneurs, *by definition*, had an incentive to expand output whenever investment exceeded savings, so that an excess of investment over savings was robbed of all the causal significance which was imputed to it.

We now come to Professor ROBERTSON's definition of saving, which seems to give the best and most precise expression to what is in the mind of those who spoke and speak unsophisticatedly of differences between *S* and *I*.<sup>2</sup>

Professor ROBERTSON explicitly introduces from the beginning the discontinuity of the income streams by adopting a "period analysis". He assumes that money income<sup>3</sup> received in the current period—"to-day"—becomes available for expenditure only during the next period—"to-morrow".

Such a "day" may be longer than a day: it may be as long as, say, a week. The exact length depends on the habits and techniques of payments. For any day, Professor ROBERTSON distinguishes, accordingly, between disposable income and earned income. The disposable income of to-day is the earned income yesterday, and the earned income of to-day becomes disposable income to-morrow.

Saving for any day is defined as *disposable* income of the same day (= earned income of the day before) *minus* consumption expenditure of the same day. Investment, on the other hand, is

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defined as an *ex ante* concept, while profits and losses are *ex post* magnitudes. Likewise, *S* is defined in *ex ante* terms and *I* in *ex post* terms. (This was pointed out to me by Dr. Redvers Opie, Oxford.)

<sup>1</sup> This has been pointed out by Professor Hayek, Professor Hansen, Mr. Tout and Mr. Hawtrey in their respective analyses of the *Treatise*. Cf., especially, Hawtrey: *The Art of Central Banking*, pages 334 *et seq.*

<sup>2</sup> *Vide* his article "Saving and Hoarding," *Economic Journal*, Vol. 43, September 1933, page 399, and the subsequent discussion between Professor Robertson, Mr. Keynes and Mr. Hawtrey, *ibid.*, page 699.

<sup>3</sup> The analysis must, of course, be extended to payments other than income payments.

defined as actual expenditure on new investment goods during the day. Hence, investment can be greater than saving, because money may be spent out of other sources than from (disposable) income. Expenditure may be made from newly created bank money or from hoards. This money becomes, of course, earned income on the same day and disposable income on the following day. Thus an excess of  $I$  over  $S$  implies an increase of to-day's (earned) income over yesterday's (earned) income. Similarly, an excess of  $S$  over  $I$  implies a decrease of to-day's income as compared with yesterday's income. This evidently expresses precisely what is meant, when, in an unsophisticated way, it is said that, if  $I$  runs ahead of  $S$ , inflation ensues, and that an excess of  $S$  over  $I$  implies deflation.

It should now be pretty clear how statements in the language of those who (explicitly, like Professor ROBERTSON, or implicitly, like many others) distinguish between disposable and earned income can be translated into statements in the language of Mr. KEYNES, which does not make this distinction. This has been clearly realised by Mr. KEYNES himself<sup>1</sup> and by Professor HANSEN.<sup>2</sup>

There is another point of ambiguity which *Money income* may give rise to misunderstanding. Professor *versus money* ROBERTSON and others use "income" in the *value of* sense of actual money income involving monetary *output.* transactions (a transfer of money). This need not be quite the same thing as income in the sense of the money value of the output as a whole.<sup>3</sup> A corresponding distinction should be made about saving, whilst investment is almost invariably used in the sense of money value of unconsumed output. Mr. KEYNES uses the terms "income" and "saving" in the value sense, and Professor OHLIN says explicitly that

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<sup>1</sup> *General Theory* page 78.

<sup>2</sup> Cf. his review of the *General Theory* in the *Journal of Political Economy*, Vol. 44, 1936, page 674, now reprinted in *Full Recovery or Stagnation*, New York, 1938, page 22.

<sup>3</sup> "Undeclared", that is, at current prices, or "deflated" by any sort of price index.

income, in his sense, "has nothing to do with the actual receipt of cash".<sup>1</sup>

The two magnitudes need not coincide, because income in the sense of money value of output comprises items which do not give rise to monetary transactions—*e.g.*, "imputed" income (example: the services of a house to its owner), or "bartered" income, or the accumulation of stocks. But even if all transactions of goods took the shape of purchases for, and sales against, money, there would be certain discrepancies between the two types of income, because money income is received at discreet intervals, while real income flows more continuously. Furthermore, if new money is created and handed to somebody not in exchange for a service performed by the recipient (*e.g.*, an unemployed), this might be called that person's money income to which, before the money is spent, there corresponds no increase in the value of output.

In the case of non-wage and non-salary income, the concept of actual money income is beset with further difficulties, which make it impossible to define it by looking at the monetary transactions alone without any reference to the sphere of real goods. Not all money receipts and expenditures of a firm are income receipts and expenditures. Which part of the total flow of money has to be regarded as income and which as "intermediate transaction" can be defined only with reference to the "real" sphere. But even if this has been accomplished satisfactorily, it is in many cases not possible, without more or less arbitrary conventions, to identify individual transactions (either the "real" or the corresponding "monetary" transactions) as income or non-income transactions. It is, for example, not admissible to regard all purchases of consumers' goods by the final consumer as income transactions; for consumption can exceed income, the difference being dissaving. Nor is it always possible to identify an individual purchase of a capital good as constituting new investment or replacement—that is, as belonging to the income sphere or not. Income and new investment can be determined only in the

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<sup>1</sup> "Some Notes on the Stockholm Theory of Savings and Investment", *Economic Journal*, Vol. 47, 1937, page 65. Mr. Lerner, on the other hand, always speaks of *acts of expenditure*, which are classified either as consumption or investment, while both together constitute income.

aggregate, as residuals. By deducting from total output what is considered necessary for maintaining the capital stock intact, we determine income; and by deducting consumption from income, we obtain the volume of new investment.

We now come to another set of definitions *The Swedish* which gives meaning to the concept of a difference *ex ante* and between  $S$  and  $I$ . This scheme has been worked *ex post* out by a group of Swedish writers such as Mr. Erik *analysis*. LUNDBERG,<sup>1</sup> Professor Erik LINDAHL,<sup>2</sup> Professor Gunnar MYRDAL<sup>3</sup> and Professor Bertil OHLIN.<sup>4</sup> A very similar scheme has been proposed by Mr. HAWTREY.<sup>5</sup>

The Swedish writers distinguish for all the magnitudes concerned—income, saving, investment and others—between an *ex ante* and an *ex post* sense.<sup>6</sup> Looking back at any period of time that has elapsed, one can measure—at least in principle—what  $Y$ ,  $C$ ,  $S$ ,  $I$ , etc., actually were. This is the *ex post*, or registration or accounting, sense of these magnitudes. Like Mr. KEYNES, Professor MYRDAL and Professor OHLIN<sup>7</sup> define  $S$  and  $I$  *ex post* in such a way that they are always equal—i.e., both as  $Y - C$ .

From the *ex post* sense of these concepts, the *ex ante* sense must be carefully distinguished, and what is true of the *ex post* phenomena of a certain kind need not be true of the corresponding

<sup>1</sup> *Studies in the Theory of Economic Expansion*, London, 1937.

<sup>2</sup> *Studies in the Theory of Money and Capital*, London, 1939.

<sup>3</sup> "Der Gleichgewichtsbegriff als Instrument der geldtheoretischen Analyse" in *Beiträge zur Geldtheorie*, ed. by Hayek 1933 (an English version of which will soon be published by William Hodge, London).

<sup>4</sup> "Some Notes on the Stockholm Theory of Savings and Investment", *Economic Journal*, Vol. 47, 1937, pages 53 *et seq.* and 221 *et seq.*, and "Alternative Theories of the Rate of Interest", *ibid.*, pages 423 *et seq.*

<sup>5</sup> See especially his *Capital and Employment*, *passim*.

<sup>6</sup> Professor Myrdal was the first to introduce this distinction. Professor Ohlin's exposition is, however, more accessible and more developed. Therefore, reference will be made chiefly to him.

<sup>7</sup> Other members of the group seem to lean rather to Professor Robertson's definition. See Ohlin (*loc. cit.*, page 57): ". . . my terminology has been viewed with great scepticism by some of the younger Stockholm economists, chiefly because of my way of defining income so as to make savings and investment always equal *ex definitione*". We shall, however, see that the two analytical schemes, if fully thought out, are by no means exclusive of each other.



*ex ante* phenomena. The *ex ante* manifestations of income, saving, investment, etc., are the expectations entertained by all the individuals and firms in respect of those magnitudes at any point of time for some period ahead of that point. Any member of an economic society at any moment of time expects a certain income, and plans or intends to spend a certain part of it on consumption and to save another part. The "plan to save" must be associated with the "plan to increase the quantity of cash" or with the "plan to lend". (These are the only two alternatives "if the use of one's own savings for new investment is treated as giving credit to oneself".)<sup>1</sup>

The entrepreneurs expect certain prices to rule, a certain demand situation, certain interest rates and production costs to exist, etc., and, on the basis of these expectations, they plan a certain amount of investment.

Summing up the expected income, planned consumption, saving and investment of all individuals, we arrive at the *ex ante* magnitudes of these phenomena for the economy as a whole.

"There is no reason", according to this school *How equality* of thought, "for assuming that planned saving and of *S* and *I* is planned investment should be equal. But when brought about the period is finished, [realised] investment is equal *ex post*. to [realised] saving. How does this equality come

about? The answer is that the inequality of *ex ante* saving and *ex ante* investment sets in motion a process which makes realised income differ from expected income, realised saving from planned saving and realised new investment differ from the corresponding plan.<sup>2</sup> This difference we can call *unexpected income*, *unexpected new investment*, and *unintentional savings*.

. . . The business-man who, after the closing of his accounts,

<sup>1</sup> Ohlin, *loc. cit.*, page 425.

<sup>2</sup> It will be noted that, in spite of the appearance to the contrary, no statements about facts are involved in the following analysis. What actually happens, if planned saving and investment differ, is *assumed* by way of illustration, and can be described in terms of receiving and spending of money and of movement of goods between individuals and into and out of existence without using the terms "savings" and "investment". No particular process is required to make *S* and *I* equal *ex post*. All sorts of reactions are possible, but, whatever actually happens, they must be equal, because the terms are chosen in such a way.

finds that he has had a larger net income than he expected and that, therefore, the surplus over and above his consumption is greater than his planned savings, has provided 'unintentional savings' which is equal to this unexpected surplus. Unexpected new investment, which, like unintentional saving, may, of course, be negative, can mean simply that stocks at the end of the period are different from what the entrepreneur expected. . . ."<sup>1</sup>

"Assume that people decide to reduce their savings and increase their consumption during the next period by 10 millions, as compared with realised savings and consumption during the period which has just finished. . . Assume further that the planned investment is equal to the realised investment during the last period." (Since realised savings and realised investment are equal, these assumptions imply that *ex ante* saving falls short by 10 millions of *ex ante* investment.) "What will be the result? Retail sales of consumption goods will rise 10 millions and the stocks of retailers will, at the end of the period, be down—e.g., 7 millions, the remaining 3 millions being extra income of the retailers. This latter sum is 'unintentional' savings. Thus realised saving is down only 7 millions, or the same amount as realised investment."<sup>2</sup> Realised investment is down because the depletion of stocks by 7 millions is counted as unintentional disinvestment.<sup>3</sup>

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<sup>1</sup> Ohlin, *loc. cit.*, pages 64 and 65.

<sup>2</sup> *Ibid.*, pages 65 and 66.

<sup>3</sup> This analysis can be readily translated into Robertsonian language. We would have to say that investment actually exceeds saving by 3 millions. The difference is "financed by other means than by saving from (disposable) income". This way of expressing the matter has the advantage that it calls attention explicitly to the fact (which is, of course, implied also by Professor Ohlin's analysis) that bank credits must be expanded or that some people must dishoard—i.e., "reduce their quantity of cash". (Ohlin, *loc. cit.*, page 425.) The supply of loanable funds must be elastic; otherwise the planned investments could not go ahead undisturbed by the fact that people spend more on consumption than was foreseen. This assumption about the elasticity of the money supply may be correct in many cases, especially if the period in question is sufficiently short. It need, however, not always be correct, and if it is not, the rate of interest will rise so much (or credit will be rationed in such a way) that the investment plans will be sufficiently scaled down. This may very well lead to more or less serious disturbances in the

Similarly, other cases of differences between *ex ante* saving and *ex ante* investment can be analysed. "When the State finances public works with the printing of new notes, the increased investment is matched [*ex post*] by increased 'real' savings", although *ex ante* investments were in excess of savings, since it is assumed that no planned savings corresponded to the planned Government investment. "At the end of the period, some people hold more cash than at its beginning. This is evidence that they had an income which they have not consumed—*i.e.*, that they have saved. *Ex post*, there is *ex definitione* equality between savings and investment."<sup>1</sup>

In a later article,<sup>2</sup> Professor OHLIN<sup>3</sup> has given *The ex ante* important elucidations of his theories. He explains *concepts as* there that his *ex ante* concepts of savings, investment *schedules.* as well as the other closely related pair of concepts—*viz.*, demand and supply of credit—are intended to mean the same thing as demand and supply *schedules.* "*Ex ante* saving" means the schedule showing how much people are willing to save at different hypothetical rates of interest. And "*ex ante* investment" is the schedule showing how much people are planning to invest at different interest rates.

However, the rate of interest is not determined *Demand and* by the interaction of the curves relating to saving *supply of* and investment; it cannot be explained by demand *credit* and supply of saving. "There is no such market *determine* for savings and no price of savings" (page 424). *the rate* But there is a market for credit,<sup>4</sup> and "the price of *of interest.* credit [*i.e.*, the interest rate] is determined by the supply and demand curves for credit or, which amounts to the same, for 'claims'" (pages 423 and 424).

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capital-goods industries, as analysed by Professor Hayek. That shows again that Professor Hayek's theory can be well expressed with the help of the Swedish terminological apparatus.

<sup>1</sup> Ohlin, *loc. cit.*, page 69.

<sup>2</sup> "Alternative Theories of the Rate of Interest", *Economic Journal*, Vol. 47, 1937, page 423 *et seq.*

<sup>3</sup> It is not quite clear whether his Swedish colleagues all agree on this.

<sup>4</sup> Strictly speaking, there are different markets for different kinds of credit—short-term, long-term, etc.

The two pairs of curves, relating to saving and investment on the one hand and to credit or claims on the other, are interrelated, but they are not identical. How are they interrelated? The supply of credit (= demand for claims—*e.g.*, for bonds) is not equal to planned savings (the supply of saving), because “it is possible to plan to save and to increase the quantity of cash instead of lending. Also, one can plan to extend new credits in excess of planned savings if one is willing to reduce one’s own quantity of cash.”<sup>1</sup>

Similarly, the demand schedule for credit is not identical with the curve for planned investment, because there may be a “desire to vary the cash held, to cover expected losses or to finance consumption”.<sup>2</sup>

Obviously, a similar proviso as for “increases” or “decreases of cash” held (in other words, for hoarding and dishoarding) must be made for changes in the quantity of money made by the banking system or the Government. An increase in the quantity of money has the same effect as a reduction in cash holdings of some individuals: it increases the supply of credit beyond *ex ante* saving. The case of a decrease in the quantity of money is similar.

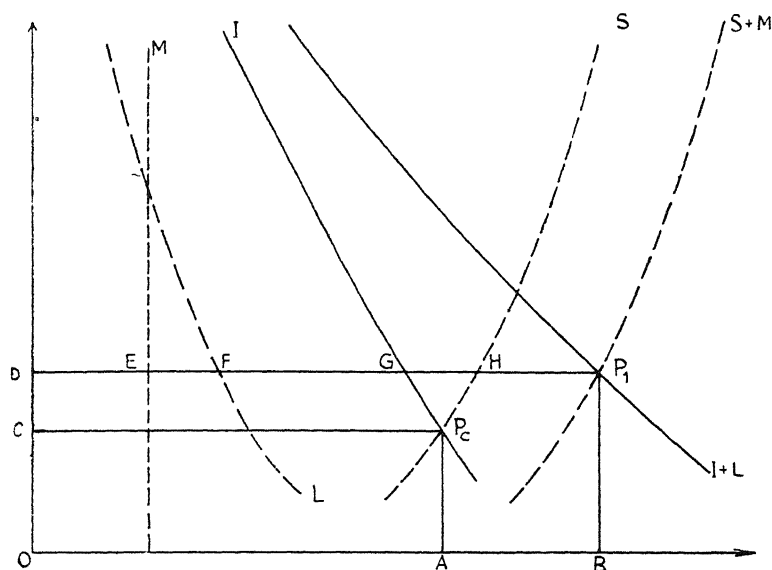
Taking everything into account, it would seem *Diagrammatic* that Professor OHLIN’s theory can be precisely *exposition*. stated in the words of Mr. A. P. LERNER:

“The rate of interest is the price that equates the supply of ‘credit’, or saving *plus* the net increase in the amount of money in a period, to the demand for ‘credit’, or investment *plus* net ‘hoarding’ in the period. . . . This is illustrated by [the following] Figure 7.

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<sup>1</sup> *Loc. cit.*, page 425. There are some other possible differences between supply of credit and *ex ante* saving. “Besides, one can plan to extend credit instead of reinvesting ‘capital made free’—*i.e.*, ‘depreciation money’” (page 425). A failure of reinvesting depreciation quotas can evidently be treated as negative investment, and could accordingly be deducted from the investment curve (demand curve for credit, of which the investment curve constitutes an element), instead of being added to the supply of credit.

<sup>2</sup> *Ibid.* The latter two items could be considered as negative saving and thus be deducted from the supply curve (curve of *ex ante* saving), instead of being added to the demand curve (curve of *ex ante* investment).



" $S$  is the supply schedule of saving, showing how much would be saved (measured horizontally) at each rate of interest (measured vertically).  $I$  is the schedule of investment showing how much would be invested (measured horizontally) at each rate of interest. These two schedules intersect at  $P_c$ , the 'classical' point of equilibrium, which shows the rate of interest being determined at that level ( $AP_c$ ) at which saving equals investment, both being equal to  $OA$ .  $L$  is the schedule showing the amount of net 'hoarding' that would take place at each rate of interest. In the figure, this is shown as a *positive* amount (*i.e.*, at all the rates of interest considered, there would be a net balance of 'hoarding' and not a net balance of 'dishoarding') which is greater for lower rates of interest. There is no reason for expecting 'hoarding' always to outbalance 'dishoarding' in the economy, and this is taken to be so in the figure merely for the purpose of simplifying the diagram. 'Hoarding' could be taken as a negative quantity at some or at all rates of interest (and shown by the  $L$  curve falling to the left of the vertical axis) without affecting the argument in any way.

"The  $M$  curve shows the increase in the amount of money in the period and is here shown as a positive amount and independent of the rate of interest. Both of these conditions are postulated merely for the purpose of simplifying the diagram. A *decrease* in the amount of money could be shown by drawing the  $M$  curve to the *left* of the vertical axis, signifying a negative increase in the amount of money. It might be the policy of the monetary authorities to take the rate of interest into account when deciding by how much to increase (or decrease) the amount of money. Thus if they increase the amount of money more (or diminish it by less), the higher is the rate of interest, then the  $M$  curve will slope *upward* to the right. But all such differences in assumptions would merely complicate the diagram without affecting our argument in any way.

"The  $M$  curve is now added horizontally to the  $S$  curve, giving the total net supply schedule of loans (or 'credit') marked  $S + M$ . The  $L$  curve is added to the  $I$  curve, giving the total net demand schedule for loans (or 'credit') marked  $I + L$ . The two new curves intersect at  $P_1$ , giving an equilibrium into which the complications due to 'hoarding' and to changes in the amount of money appear to have been incorporated."<sup>1</sup>

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<sup>1</sup> "Alternative Formulations of the Theory of Interest", in *Economic Journal*, Vol. 48, 1938, pages 213 to 215. It is true, Mr. Lerner puts this account of the matter forward as an interpretation, not of Professor Ohlin's theory, but of "the position [of the theory of interest] as it appears after the first step [from the 'classical' to the 'modern' view] has been taken" (page 213). This first step consists of the recognition "that 'hoarding', 'dishoarding' and changes in the amount of money also have something to do with the supply of 'credit' and the rate of interest—in the short period, at any rate" (page 211). This seems to me precisely the position taken by Professor Ohlin. Mr. Lerner merely does not take cognisance of the *ex ante* nature of supply and demand curves of saving in Professor Ohlin's theory. He interprets  $S$  and  $I$  throughout *ex post*. Hence, in a second graph (page 216), he draws just one curve, which is a saving and investment curve at the same time, whilst Professor Ohlin emphasises that  $S$  and  $I$  *ex ante* are not necessarily equal. Mr. Lerner probably has been misled by the fact that Professor Ohlin introduces the interpretation of the *ex ante* concepts of  $S$  and  $I$  in the schedule sense as an afterthought, as it were, in a reply to a criticism by Mr. Keynes; in his original articles, he did not make it clear that he meant schedules when he spoke of *ex ante* saving and investment.

Let us draw a few corollaries from Professor OHLIN's interpretation of *ex ante* saving and investment as schedules and their relation to the demand and supply curves of credit which determine the rate of interest. Obviously, it is not strictly permissible to speak in the singular of *the* difference between *ex ante*  $S$  and  $I$ . There is a whole schedule of such differences, showing what that difference would be at different hypothetical interest rates. If Professor OHLIN speaks of the difference, he probably refers to the equilibrium<sup>1</sup> point,  $P_1$ , in our diagram.

This point  $P_1$  in a sense denotes an *ex post* position; for it determines "the quantity of credit *actually* given". At the rate of interest corresponding to that point, *ex ante* saving and *ex ante* investment need *not* be equal. In our figure, *ex ante*  $S$  exceeds *ex ante*  $I$  by  $GH$ . This difference is equal to the amount of money hoarded ( $DF$ ) minus the increase in the amount of money ( $DE$ ),  $GH$  being equal to  $EF$ .<sup>2</sup>

It should be observed that the diagram does not show savings and investment *ex post*; nor does it depict "the process",<sup>3</sup> set in motion by the *ex ante* difference between saving and investment, which brings about the equality *ex post* between saving and investment.

<sup>1</sup> Equilibrium in the sense of immediate market equilibrium. There need be no equilibrium in any more ambitious sense.

<sup>2</sup> Mr. Lerner says that "this exactly portrays the disturbed state of mind of people who declare that saving can be greater than investment if the difference is hoarded" (page 215). Mr. Lerner is led to this statement by his erroneous and rather naive imputation to other writers of his own definition (a) of  $S$  and  $I$  and (b) of hoarding and dishoarding. He defines  $S$  and  $I$  throughout as identical and *ex post*, while in the above diagram it must be defined *ex ante* (or, as we shall see presently, *à la* Robertson). Mr. Lerner's definition of hoarding and dishoarding, which he shares with Messrs. Keynes, Harrod, Kahn and others, will come up for discussion in § 3 of this chapter.

<sup>3</sup> It may be noted once more that these words used by Professor Ohlin are rather misleading. Strictly speaking, no process is needed, because  $S$  and  $I$  *ex post* are equal at any moment of time. The word "process" suggests—erroneously—that there is only a tendency towards their becoming equal at the end of the process and that they are unequal at the beginning and during that process. In reality, according to the definition given, they are equal at any moment of time.

Let us investigate a little more the foundation of Professor OHLIN's theory and draw some further conclusions from it, not all of which have been stated by the author himself, probably for lack of space. We shall see that Dr. LUTZ's contention is right,<sup>1</sup> that the Swedish *ex ante* analysis, if thought through to its logical end, comes very near to

Professor ROBERTSON's period analysis. As Dr. LUTZ points out, in order to make use of the apparatus of demand and supply curves relating to credit, saving and investment, the period of time taken into consideration must be very short, at least so short that there do not occur any revisions of the various plans during the period.<sup>2</sup> After the period has elapsed, people revise their plans in the light of the experience gained during the period; in other words, the curves relating to saving, investment, credit, etc., shift to new positions.

The choice of the length of the unit period which suits Professor OHLIN's theory is not to be made on the basis of the same principles as the choice of the length of Professor ROBERTSON's unit period.<sup>3</sup> The latter, Professor ROBERTSON's "day", is chosen so as to make it impossible, in view of the existing habits of payment, that money received during the day should be spent during the same day; Professor OHLIN's unit period rests on the postulate that plans should remain unchanged during the period.

Let us now concentrate on what happens during any unit period. Professor OHLIN draws for the credit market an analogy with a village market for eggs where people appear with "alternative purchases and sales plans" as represented in their demand and supply curves.<sup>4</sup> It is not quite clear how far the author wishes to carry this analogy, but if he carries it sufficiently far by taking a very short period, his theory really coincides with that

<sup>1</sup> "The Outcome of the Saving-Investment Discussion", *Quarterly Journal of Economics*, Vol. 52, August 1938, page 604.

<sup>2</sup> We abstract from a number of difficulties connected with the overlapping of the plans, which is due to the fact that plans of different individuals are not always made at the same time and do not all extend over the same period.

<sup>3</sup> This problem has been well discussed by E. Lundberg, *loc. cit.*, *passim*.

<sup>4</sup> *Loc. cit.*, page 423.



of Professor ROBERTSON, for *ex ante* saving then becomes saving out of the income received on the day before. Perhaps he would not want to go so far, because *ex ante* saving would then no longer be savings out of a future, expected and uncertain income, but out of an income which has already been received. On the other hand, the alternative construction presents very serious difficulties. Clearly, if planned savings were to mean savings out of a future income, which might not materialise at all, it would not be possible to say that "the price of 3% bonds—and thus the long-term rate of interest—is fixed on the bond market by the demand and supply curves in the same way as the price of eggs or strawberries on a village market"<sup>1</sup> and to explain that planned savings constitute a part of the demand for bonds.<sup>2</sup> How can future savings constitute supply of credit and affect the bond market before they are actually made?<sup>3</sup>

We conclude that the most reasonable interpretation of Professor OHLIN's concept of *ex ante* saving, is "saving from disposable

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<sup>1</sup> *Loc cit.*, page 424.

<sup>2</sup> This is said very clearly, although not with these words, *op. cit.*, page 425. "Will not the planned supply of credit [= demand for bonds] be equal to the planned savings? . . . No, not quite." And then follow the qualifications about hoarding, dishoarding, etc., which have been mentioned above, page 184.

<sup>3</sup> An excess of *ex ante* saving over *ex ante* investment, we have seen, leads to a deficiency of demand for consumers' goods and causes losses to the retailers. This is one of the "processes" which bring about equality between *S* and *I ex post*. Clearly, if this construction is to make sense, *ex ante* saving cannot be interpreted as saving out of a future income. That could not affect retail sales now. To be sure, expectations about future income may affect present saving as a motive. But so will expectations about a hundred other things, and the manner in which, and extent to which, they affect the present situation is by no means uniquely determined.

These considerations illustrate a basic difficulty of the whole *ex ante* (expectation) analysis: How can mere plans about the future influence the present situation? People are, on the whole, not so much influenced by other people's expectations or plans, as by their actions. Does not the whole expectation analysis stand in need of a behaviouristic re-interpretation? As Professor Robertson puts it: "Changes in 'nesses' [he is speaking of thriftiness] and 'propensities' do not in themselves exercise any effect on the external world. Nor does a decision to get up early necessarily indicate any reduction in the propensity to lie in bed—it may rather indicate an increased determination not to indulge in that propensity!" (*Economic Journal*, September, 1938, page 555.)

income". This conclusion is fortified by the fact (stressed by Dr. LUTZ) that an excess of investment over saving has the same consequences in Professor OHLIN's scheme as in Professor ROBERTSON's: in both cases, it has a stimulating effect and is a characteristic of an expansion of business (prosperity phase of the cycle).

If the foregoing interpretation of Professor OHLIN's theory is correct—that is to say, if it does not exceed what can be deduced from his theory, although it contains more than he explicitly says—there remain certain inconsistencies and difficulties which call for further modifications of the theory.<sup>1</sup>

In so far and inasmuch as the actions of the individuals are determined by, and foreshadowed in, the various schedules, everything happens according to a plan—viz., to that one of the "alternative plans" of the various individuals which corresponds to the interest rate emerging as the actual market rate. Since Professor OHLIN identified the *ex ante* magnitudes with the alternative plans embodied in, or represented by, these schedules, it is difficult to see how he can speak of people's being disappointed by events going contrary to their plans. It is said, for instance, that retailers may find themselves with greater stocks than they expected (unintentional investment); or with lower receipts than they anticipated (unintentional dissaving). Are their actions leading to these results—viz., either leaving the sale price unchanged (which entails the accumulation of stocks) or reducing the price (which entails losses and a reduction in saving)—not predetermined in their supply schedule? Everything happens according to the various schedules, and if all the possible plans of which Professor OHLIN speaks are embodied in these schedules, there can be no upsetting of the plans and no disappointment.

There are various ways out of this dilemma. The best, which rescues a maximum of Professor OHLIN's theoretical edifice

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<sup>1</sup> These difficulties have been clearly noticed by W. Fellner, "Savings, Investment, and the Problem of Neutral Money", in *Review of Economic Statistics*, Vol. 20, November 1938, page 188. Cf. also the criticism of the *ex ante* concept by Professor H. Neisser in *Studies in Income and Wealth*, vol. II, New York, 1938, page 172 *et seq.*

appears to be the abandonment of the identification of the *ex ante* concepts with the schedules mentioned. In other words, the plans which may be upset and the expectation which may be disappointed should be distinguished from what Professor OHLIN calls the "alternative purchase and sales plans" embodied in the various demand and supply schedules. The former stretch into the future, whilst the latter relate to a point or short period of time.

At any moment of time, a man may have (more or less consciously) alternative plans of action with respect to sales, purchases, savings, investment, borrowing, lending, etc., under different hypothetical prices, interest rates, etc., represented by various schedules. Nevertheless, he has probably been expecting for some time, more or less confidently, that one of these various possible situations would actually arise, or that the occurrence of some was more probable than of others. Moreover, he is likely to have acted in the past on the expectation that some things are more likely to happen than others: he has laid in stock or placed orders for the delivery of goods in the expectation that demand for, and the price of, his product will stand at a certain level; he has started certain constructions (investment) in the expectation that the situation in the loan market would enable him to borrow at a certain interest rate, etc. Hence the realisation of some of the situations foreshadowed in the instantaneous schedules of alternative actions will be in accordance with the long (or longer) range plans; the realisation of others will upset them. But events are still running according to schedule—that is, according to the instantaneous or short-run schedules.<sup>1</sup>

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<sup>1</sup> There remain unanswered, of course, a number of questions—philosophical questions, we may perhaps say—about the precise nature of the instantaneous curves. Is it justifiable to characterise a demand curve, as Professor Ohlin does, as a series of alternative plans? This language suggests that the various, strictly infinite, alternatives are thought out in advance in the mind of the individuals. A more behaviouristic interpretation may be better, because it allows one to dispense with this questionable assumption. We cannot here go into these problems and, fortunately, need not; for, whatever we answer to these questions, it remains true that the plans which are upset must be kept apart from the "plans" or decisions represented in the instantaneous curves.

Mr. HAWTREY's distinction between "designed" Mr. *Hawtreys* or "active" and "undesigned" or "passive" *designed* and investment is very similar to Professor OHLIN's *undesigned ex ante* and *ex post* investment. Mr. HAWTREY *investment*. refrains, however, from interpreting designed investment as schedules and thus avoids obscurities from which Professor OHLIN's treatment suffers. The sum of designed and undesigned investment is total investment, which is defined as the "increment of unconsumed wealth" and is also called "saving". (There is no distinction between "active" and "passive" saving in Mr. HAWTREY's scheme.) Designed investment is defined as the voluntary acquisition of items of unconsumed wealth in the expectation that they will be remunerative; this is what Professor OHLIN calls "*ex ante* investment". Undesigned investment is defined as an "increment of unconsumed wealth, which is not acquired voluntarily in the expectation of its being remunerative; this will be an involuntary accumulation of unsold goods"—Professor OHLIN's unexpected investment.<sup>1</sup> "Passive investment" may be a negative quantity; that is to say, active investment may exceed saving, and the excess will be represented by an undesigned disinvestment or decrement of stocks of unsold goods. Thus active investment and saving (= net total investment) may be unequal. If they are, the resulting undesigned increment or decrement of unsold goods will be a source of disequilibrium, leading to a decrease or an increase in productive activity and possibly also in the price level.<sup>2</sup>

<sup>1</sup> It is not quite clear whether "undesigned investment" is identified with "an involuntary accumulation of unsold goods" or whether the latter is only a special case of the former. If the former interpretation were correct, Mr. Hawtreys's undesigned investment would be a narrower concept than Professor Ohlin's difference between *ex ante* and *ex post* investment.

<sup>2</sup> *Capital and Employment*, London, 1937, pages 176 and 177. See also *Economic Journal*, 1937, page 439, where Mr. Hawtreys discusses the relation between his and Ohlin's concepts. The distinction between *ex ante* and *ex post*, designed and undesigned, *S* and *I* has been clearly anticipated in Professor Robertson's *Banking Policy and the Price Level*. His "spontaneous lacking" corresponds clearly to *ex ante* or designed investment and his "induced lacking" to undesigned investment, which is the difference between *ex ante* and *ex post* investment. (This was pointed out to me by Dr. J. G. Koopmans, The Hague.)

It remains to enquire why Mr. KEYNES finds it necessary to distinguish between saving and investment. We have seen that the formal definitions in which he gives on page 63 of his *General Theory* are such that, for society as a whole,  $S$  and  $I$  are not only equal, but identical; viz., the value of unconsumed output. If that definition were strictly adhered to,  $S$  and  $I$  would be synonymous symbols, they could be used interchangeably and there would be no necessity—in fact it would be rather misleading—to retain both expressions.

Now this is not Mr. KEYNES' practice. He uses both terms, deliberately and not for purely stylistic reasons. Moreover, he points out that the acts of saving and of investment are usually performed independently by different people.<sup>1</sup> He insists that a process is required to make  $S$  and  $I$  equal, and sees the "initial novelty" of his theory in his "maintaining that it is not the rate of interest, but the level of incomes, which ensures equality between saving and investment".<sup>2</sup>

<sup>1</sup> *General Theory*, pages 20 and 21, 210.

<sup>2</sup> *Economic Journal*, Vol. 47, 1937, page 250. It is misleading to say that income must change, in order to ensure the equality of  $S$  and  $I$ . Whatever the level of income may be,  $S$  and  $I$  must be equal, because they are made so by definition. The change of level of income comes in as a condition only because Mr. Keynes takes the 'multiplier'—'the marginal propensity to consume' (compare § 4 below for a definition of these concepts)—as a constant quantity. He assumes that there is a certain relationship between a (small) increase in investment and in income. Suppose, for example, the multiplier is 3 (in other words, the marginal propensity to consume is  $2/3$ )—that is, to any small increment in  $I$ , corresponds an increment in  $Y$  three times as great. If that assumption is to be borne out by the facts, we must find that, whenever a change in investment has occurred, income must have changed by three times as much. But the multiplier (alternatively expressed: the marginal propensity to consume) need not be a stable magnitude, independent of the nature of the change in  $I$  and the surrounding conditions. (This, Mr. Keynes himself has recognised.) Hence, if in a concrete case we find that income did not change as we expected on the basis of what we assumed about the multiplier, we shall not say 'this is impossible, because  $S$  is not equal to  $I$ ', or ' $S$  can now not be equal to  $I$ ', but we shall say the multiplier (marginal propensity to consume) was different from what we expected.

The same in slightly different formulation: If we assume (expect) something about the magnitude of the multiplier, we implicitly assume

He expressly rejects Mr. HAWTREY's comment that  $S$  and  $I$  "are two different names for the same thing" and "that, in any sentence in which the word 'investment' occurs, the word 'saving' could be substituted for it without any change in the meaning".<sup>1</sup>

The explanation given of the paradox that the two things, although identically defined, are not quite the same is this:  $S$  and  $I$  are different aspects of the same thing. They "are necessarily equal in the same way in which the aggregate purchases of anything on the market are equal to the aggregate sales. But this does not mean that 'buying' and 'selling' are identical terms, and that the laws of supply and demand are meaningless."<sup>2</sup>

The total purchases of a commodity must be identical with the total sales of that commodity, but an *individual's* purchases need not—and indeed are unlikely to—be equal to his sales of the same commodity. In the same way, total savings are identical with total investment, if we employ Mr. KEYNES' definitions; but an individual's savings need not be equal to his investment. It may be useful to retain the two separate terms "saving" and "investment", since, even with Mr. KEYNES' definitions, they are not necessarily equal when reference is made to an individual.

There is a second reason for the retention of the two terms. Although the total purchases of a commodity are equal to the

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(expect) something about the change in income subsequent to a change, say an increase, in investment. Income must change, not because it is necessary to ensure the equality between  $S$  and  $I$ , but because we have assumed it by assuming the multiplier.

We have here an example of a confusion between a terminological relationship between symbols (in other words: a relationship between concepts by definition) and an empirical relationship between conceptually independent magnitudes. In other words: the impression is created that a statement is made about an alleged regularity in the real world, whilst in reality a rule is given for the consistent application of the terms. On the relationship between 'multiplier' and 'marginal propensity to consume' in Mr. Keynes' system, compare § 4 below and G. Haberler: 'Mr. Keynes' Theory of the Multiplier', in *Zeitschrift für Nationalökonomie*, Vol. 7, 1936, pages 299 *et seq.* On the logical and methodological principles involved, see T. W. Hutchinson: *The Significance and Basic Postulates of Economic Theory*, London, 1938, *passim*."

<sup>1</sup> *Ibid.*, page 249.

<sup>2</sup> *Ibid.* Cf. also *General Theory*, Chapter 7.

total sales of that commodity, the motives of purchasers differ from those of sellers. In the same way, the motives for investment differ from those for saving; and the word "investment" may be used for the value of unconsumed income when the context refers to the motives of investors, while the word "savings" may be used for the same quantity when it is desired to emphasise the motives of savers.<sup>1</sup>

### § 3. HOARDING, LIQUIDITY PREFERENCE AND THE RATE OF INTEREST

The theory of interest has for a long time been a weak spot in the science of economics, and the explanation and determination of the interest rate still gives rise to more disagreement among economists than any other branch of general economic theory.

For a long time, the theory of interest has had *The "pure"* two distinct branches or stages. There is (a) the *theory* "pure" theory of interest in essentially non-*of interest.* monetary terms explaining the rate of interest as the price of capital, determined by the marginal productivity of capital in a technological sense and by certain psychological factors (time-preference) influencing the relative urgency of present and future needs; Professor MARGET<sup>2</sup> calls these doctrines "real capital theories". (That some writers, chiefly the followers of Böhm-Bawerk, go on to interpret marginal productivity of capital in terms of a lengthening or shortening of the period of production, whilst other writers object to that interpretation, has been mentioned on an earlier occasion.)<sup>3</sup>

<sup>1</sup> Further elaborations will be found in G. Haberler: "National Income, Savings and Investment", in *Studies in Income and Wealth*, Vol. II, published by the National Bureau of Economic Research, New York, 1938.

<sup>2</sup> In a series of (unpublished) lectures delivered at the London School of Economics, 1933, and in an unpublished paper submitted to the American Economic Association at its meeting in Atlantic City, December 1937. The history of the two groups of theories and of the attempts at bridging the gap between them will be traced in Professor Marget's forthcoming Vol. II of his *Theory of Prices*.

<sup>3</sup> See footnote <sup>1</sup> on page 40 above.

We have (*b*) a monetary theory of the rate of *The "loanable-interest which runs in terms of demand for and fund" theory* supply loanable funds or credit or claims. *Elaboration of interest.* rate attempts have been made at reconciling and integrating these two branches. In the Wicksellian and neo-Wicksellian literature—*e.g.*, as reviewed above in Chapter 3—a detailed analysis is given of the mechanism by which, and the routes through which, pecuniary surface forces realise or falsify the fundamental relationship postulated by the "pure" theory of interest. One may very well hold that this integration has not been satisfactorily achieved, but one cannot say in justice that the problem has not been recognised.

The monetary theory of interest in terms of supply of and demand for loanable funds has to be regarded as a first approximation to a more elaborate treatment of the matter. It has been presented in the first edition of this book; it is the theory expounded by Professor OHLIN, as reviewed above in § 2 of this chapter (page 183). It is, as Professor ROBERTSON puts it, "a common-sense account of events" which attempts to give "precision to the ordinary view enshrined in such well-known studies of the capital and credit market as those of LAVINGTON<sup>1</sup> and HAWTREY, as well as in a thousand newspaper articles".<sup>2</sup>

This "common-sense" explanation of the rate of interest, and the more elaborate theory behind it, has been criticised by Mr. KEYNES and other writers. He has replaced it by a purely monetary theory, in which the rate of interest is completely divorced from the demand and supply of saving and explained instead by means of the "liquidity preference schedule" and the quantity of money.<sup>3</sup>

<sup>1</sup> *The English Capital Market*, London, 1921 (3rd ed., 1934).

<sup>2</sup> *Economic Journal*, Vol. 47, page 428.

<sup>3</sup> Professor J. R. Hicks, too, in his book *Value and Capital* (which appeared—Oxford, 1939—when this edition was already in print) distinguishes between "real capital" theories of interest and "loanable funds" theories (page 153). He calls this a "serious division of opinion" which marks a "real dispute" "But the real dispute has lately been complicated by a sham dispute within the ranks of those who adhere to the monetary approach." This refers to the dispute between Mr. Keynes and his followers on the one hand, and the demand-for-and-supply-of-loanable-funds theorists on the other hand.



Before we analyse more closely Mr. KEYNES' Mr. Keynes' theory, we may clear the ground by reviewing the criticism of the reasons, given by Mr. KEYNES and his followers, for "classical" rejecting the traditional theory of the rate of theory interest.

of interest. The greater part of Mr. KEYNES' criticism in the chapter on "The Classical Theory of Interest"<sup>1</sup> is directed against what we have termed above the "pure theory of interest" and, more particularly, against that version which explains the rate of interest by the interaction of demand and supply of saving or capital. Mr. KEYNES points out that there is no "material difference" between "the demand curve [for capital] contemplated by some of the classical writers" and his "schedule of the marginal efficiency of capital or investment demand-schedule".<sup>2</sup> Against this demand curve, some classical writers set a supply curve of capital—that is, a curve showing how much saving (or capital) would be supplied at different hypothetical interest rates. The intersection of the two curves then determines simultaneously the rate of interest and the amount saved and invested.

Criticising this scheme, Mr. KEYNES rightly points out that the amount saved depends, not only on the rate of interest, but also on the level of income. In fact, most writers agree concerning the manner in which the rate of saving depends on the level of income: the higher the income level of an individual, the higher tends to be the amount saved.<sup>3</sup> It is not so clear, on the other hand, how a rise in interest rates will affect the rate of saving.<sup>4</sup>

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<sup>1</sup> Cf. *General Theory*, Chapter 14, pages 175 to 193.

<sup>2</sup> *Loc cit.*, page 178.

<sup>3</sup> In some contexts, Mr. Keynes and many other writers make a stronger assumption: they assume that when incomes rise, not only the *absolute* amount of saving rises, but also the *proportion* of income saved goes up. This is, for instance, implied by the widely accepted proposition that a more unequal distribution of the national income tends to increase the amount saved by society as a whole.

<sup>4</sup> It has frequently been pointed out that some people may save less at a higher than at a lower interest rate, although it has been widely assumed that, for very low rates of interest, the saving incentive for the community as a whole tends to vanish.

For short-run fluctuations, however, important qualifications must be made, even in respect of *The propensity to consume in the short-run.* the first-mentioned relationship—viz., that between the amount of saving and the level of income. If we say that there is widespread agreement among economists to the effect that the amount of saving is positively correlated to the level of income, that refers to individuals—not necessarily to society as a whole, because of possible changes in the distribution of income—and under settled conditions. Especially in the case of rapid changes, the rate of change of income and recent fluctuations of the income level undoubtedly play an important rôle. If, for example, the income of a person rises unexpectedly, at first consumption may not rise at all; later on, the level of consumption will be gradually raised. Furthermore, expectations entertained by the individual about the level of income in future periods play a leading rôle and these expectations will be profoundly influenced by the history of recent fluctuations.<sup>1</sup>

To return to the dependence of the rate of saving upon the level of income : for each income level, *Interdependence of demand for and supply of saving.* a separate curve showing how much would be saved at different interest rates ought to be drawn.<sup>23</sup> This being agreed upon, the next step in Mr. KEYNES' criticism follows conclusively : the demand and

<sup>1</sup> These remarks are by no means intended to be exhaustive. The problem could be settled only by extensive empirical studies. Some further observations will be found in Chapter 10, § 6, below. Here the aim is to caution the reader against accepting too easily the view now prevalent that the positive correlation between income and the amount of saving can be taken as a secure basis of further deductions for the purpose of explaining the business cycle as well as for long-run tendencies.

<sup>2</sup> It would be easy to construct a three-dimensional diagram exhibiting the dependence of the rate of saving on the two factors : level of income and rate of interest. A complete theory would have to take still other factors into consideration—e.g., the rate of change of income.

<sup>3</sup> Mr. Keynes has not included in his theoretical scheme (although he has made some slight allusions to it) the obvious fact that investment (demand for capital), must be assumed to depend, not only on the rate of interest, but also on the level of income.

Mr. J. R. Hicks and Mr. O. Lange, in their respective diagrammatic expositions of the Keynesian theory (" Mr. Keynes and the ' Classics ' ;

supply curves of saving are not independent of one another. If, for instance, there appears a new stimulus to investment, if, that is to say, the investment demand curve shifts upward, income will, in general, rise and the supply curve of saving will shift too. Likewise, a shift in the latter will make the demand curve shift.

To sum up : the main defect of the "classical" theory of interest, according to Mr. KEYNES, is that it treats income as a given magnitude, as a determinant of the system and not as a variable.

If this criticism is valid as regards the static or equilibrium theory of interest,<sup>1</sup> it would not appear to apply to the short-run or monetary theory of the rate of interest as developed by the followers of WICKSELL. In this theory, the variability of income depending upon the shifts in the investment-demand and saving-supply curve is not neglected; for a continuous and sustained change in income is an essential feature of the Wicksellian cumulative process. A rise in income is characteristic of an expansion process; a fall of income, of a contraction process. Moreover, this theory allows for the purely monetary influences on the rate of interest; indeed, these influences operating on the actual market rate of interest are, as we have seen in Chapter 3, the very essence of the theory.<sup>2</sup>

What, then, are Mr. KEYNES' objections against the theory which conceives of the rate of interest as determined by demand for and supply of credit?

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A Suggested Interpretation", in *Econometrica*, Vol. 5, 1937, and "The Rate of Interest and the Optimum Propensity to Consume", in *Economica*, February 1938), have filled that gap. It would, however, seem to be more correct to say that the investment demand depends on the rate of change rather than on the level of income. That amounts to introducing into the system the acceleration principle which is a dynamic relationship (in a sense which will be discussed in § 6 of this chapter).

<sup>1</sup> Whether this theory, in spite of its admitted shortcomings, has not its merits, in relation to long-period equilibrium or as an ideal case realisable under certain special assumptions or as a purely theoretical standard of reference, we need not discuss in this connection, because we are here concerned more with the short-run (monetary) variety of interest theory which is used in business-cycle analysis.

<sup>2</sup> Mr. Keynes accuses the "orthodox" theory of having overlooked these monetary influences; hence he must have the "pure" theory of interest in mind. Cf. his "The Theory of Interest" in *Lessons of Monetary Experience*, New York, 1937, page 147.

We are not here concerned with the concept of *Criticism of the "natural" or "equilibrium" rate of interest* (as *the monetary* discussed in Chapter 3), but with the underlying *theory* explanation of the market rate by means of demand *of interest.* and supply curves of credit, as developed in Chapter 3, and more fully in § 2 of this chapter in elaboration of Professor OHLIN's theory. We recall that demand for and supply of credit is not the same thing as demand for and supply of (*ex ante*) saving, but that the curves relating to the latter form a part of the curves relating to credit.

Objections are raised against that theory on the ground of its implying (a) that "saving is not necessarily equal to investment", (b) that "the amount of money hoarded is not necessarily equal to the increase in the amount of money".<sup>1</sup>

The first of these two difficulties has already been discussed in § 2 of this chapter; it would appear to arise from the various possible meanings which may be attached to the terms "saving" and "investment". If these terms are defined in the manner proposed by Professor ROBERTSON, the difficulty would seem to disappear, and Professor OHLIN's analysis, if carried to its logical conclusion, gives the same result.

The second difficulty, concerning the term *The concept* "hoarding", requires careful consideration, because *of* it has been an important source of confusion and "hoarding". misunderstanding in recent years.

The term "hoarding" is alien to Mr. KEYNES' terminological system. It is used only when reference is made to theories of other writers. In such cases, however, it would seem that the term is used in two distinct senses, and the sense which, in most cases, is applied and attributed to other writers would seem to differ from the meaning attributed to it explicitly or implicitly by those writers themselves.

According to this definition, "net new hoarding" (in the sense of the amount hoarded; that is, of the result of this activity, "hoarding", during a certain period) is the same thing as the

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<sup>1</sup> A. P. Lerner: "Alternative Formulations of the Theory of Interest", in the *Economic Journal*, Vol. 48, June 1938, page 215.

increase in the quantity of money during that period. For, if an individual's net hoarding in any period of time is defined as the addition which he makes to his holding of money during that period, the net hoarding of the whole community must be equal to the net increase in the amount of money in existence. "Dishoarding" (in the sense of the amount dishoarded) is the same thing as a decrease in the quantity of money. The total amount hoarded at any time "must be equal to the quantity of money".<sup>1</sup> "Holding money" and "hoarding money" are thus synonymous terms, and since all the money in existence at any moment of time is held by somebody—if it were not "held" by somebody (if, for example, it had been lost), it would not be counted as being in existence—all the money is always hoarded.

In a few cases, however, another definition is given of hoarding—viz. : "the quantity of money *minus* what is required to satisfy the transaction-motive"<sup>2</sup>—in other words, idle or inactive money, including notes, coins and deposits or whatever is regarded as money. Net hoarding or dishoarding during a given period means, then, an increase or decrease of idle balances. This definition would seem to be roughly equivalent to the general meaning of the term.<sup>3</sup> On some occasions, however, the two concepts are used interchangeably although what holds true of one of these concepts need not and will not be true of the other. In particular, the theory<sup>3</sup> that any attempt of the public to hoard can only push up the interest rate, but cannot increase the aggregate amount hoarded unless the banking system increases the amount of money, is correct only if hoarding is defined in the wider (unusual) sense. If it is defined as an accumulation of *idle* balances, the public can hoard without any help from the banks. Even if the

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<sup>1</sup> *General Theory*, page 174.

<sup>2</sup> As is usual with economic terms, there are points of detail where the general usage is not unambiguous. They will be discussed presently.

<sup>3</sup> This argument has been frequently expressed in recent years. See, for instance, J. M. Keynes, *General Theory*, page 174, and *Economic Journal*, 1937, pages 250-251 ; A. P. Lerner, "Mr. Keynes' General Theory of Employment, Interest and Money" (*International Labour Review*, Vol. 34, October 1936, page 435 ; R. F. Harrod, *Zeitschrift für Nationalökonomie* 1937, page 494. R. F. Kahn, *Economic Journal*, Vol. 47, 1937, page 671.

quantity of money is kept constant, the amount of *idle* balances can be increased by the public at the expense of *active* balances.

It is desirable, therefore, to define more precisely the meaning of the term and to state some of its implications and corollaries.

The concept of "idle balances" presupposes the assumption of some sort of an average or normal rate of turnover or velocity of circulation. For, in order to make the concept precise, it must be specified how long a balance is to remain idle, so that it should be regarded as falling under the category of "idle balances". Overnight, all balances are idle, and over a sufficiently long period, all may have been active, in the sense of having been turned over.

People sometimes separate the balances which they keep "idle" from those which they "use", by putting the former on savings or time accounts while keeping the latter on checking accounts. But such is not always the case and, if it is not, one cannot ascertain whether an individual or society as a whole has hoarded or not by comparing the amount of money held (by the individual or by all individuals) at different points of time. We may express this by saying that hoarding has a time dimension.

Hoarding and dishoarding thus means or implies a decrease or increase in the velocity of circulation of money  $V$ , or an increase or decrease in the reciprocal of  $V$ —that is to say, in the Marshallian<sup>1</sup>  $k$ . Should we then say that "hoarding" ("dishoarding") and "decrease (increase) of  $V$ " are synonymous terms? This is a terminological question which it is difficult to answer definitely on the basis of the general usage of the terms involved. Let us briefly and roughly consider the main forces responsible for changes in  $V$  (interpreting it, for the moment,

<sup>1</sup> It is hoped that further details lying behind the concept of "velocity" may remain undiscussed—viz., the fact that we have, strictly speaking, to distinguish between a "transaction-velocity", an "income-velocity" and some other varieties, and correspondingly between a "transaction- $k$ ", an "income- $k$ ", etc., the formal nature of the relation between  $V$  and  $k$ —viz., that of reciprocity—remaining in all cases the same. On this, compare the literature quoted above, Chapter 3, § 6, page 62.

as "transaction velocity").  $V$  will change (a) if the habits of payment (e.g., the income period) change, (b) if, with stable habits of payment, some money is "withheld from circulation", or (c) if money flows into spheres (say agriculture) or regions<sup>1</sup> where its velocity of circulation is smaller than in those spheres or countries whence it came.

Some writers may prefer to reserve the term "hoarding" for such changes in  $V$  as are due to the factor (b), (or, perhaps, to (a) and (b)); they would then have to say that  $V$  is also subject to changes for reasons other than hoarding. To confine the term "hoarding" to phenomenon (b) would seem to correspond best to the definition of hoarding as the accumulation of idle deposits (unless the term "idle deposit" is given a rather wide meaning.) Suppose, for instance, that habits of payment so change that certain incomes which have been, so far, paid out in weekly instalments are, from now on, distributed in monthly payments. Assuming that before and after the change in the length of the income period has occurred, all money received is spent gradually during the respective income period, then the velocity of money is decreased, the money rests, on the average, longer in the pocket (or on the account) of the income receiver. Nevertheless, such deposits would presumably still be regarded as active, and not as idle, deposits.

The whole matter is, however, one of convenience and custom: one might just as well say that the deposits in question have become less active (that is, they are spent less frequently) and hence speak of an "act of hoarding". But we need not here come to a definite decision or, rather, make a definite terminological proposal. Suffice it to call attention to the various possibilities.

From the point of view of the feasibility of statistical measurement, the definition of hoarding as equivalent to a change in  $V$  seems to be more convenient, because an actual separation of the influence on  $V$  of the three factors mentioned above will, in most cases, prove to be impossible.

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<sup>1</sup> This has been frequently mentioned in connection with international flows of funds. Cf., for example, J. Viner: *Studies in the Theory of International Trade*, Chapters VI and VII, *passim*.

Definition of  
hoarding by  
an individual.

One more word on the definition and measurement of hoarding by an individual (person, household, firm) may be in order. We shall say that an individual has hoarded (dishoarded) if the fraction  $\frac{\text{income (or transaction)}}{\text{average cash holding}}$  decreases (increases). It

will be observed that this expression is the reciprocal of the Marshallian  $k$ .<sup>1</sup> Hence, if an individual's volume of transactions or income rises (falls) and his average cash holding rises (falls) in proportion, the individual neither hoards nor dishoards. If, for instance, somebody's monthly income used to be \$200, was received on the first of each month and spent evenly during the month, and if the income now rises to \$400, which is again received on the first of each month and spent evenly during the month, the average cash holding per day has become twice as high as before; but no hoarding has occurred. The same is true if income and average cash holding fall *pari passu*. It is, of course, possible for a decrease in income to induce a person to dishoard—that is, to reduce his expenditure by less than his income and to deplete available cash resources. But looking at the average cash balance alone, we cannot tell whether hoarding or dishoarding has occurred or not. This point is frequently overlooked.<sup>2</sup>

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<sup>1</sup>  $k$  usually refers to income; it is then the reciprocal of *income velocity*. But there is, as was pointed out above, a "transaction- $k$ ". It will be observed that it does not matter whether we express the magnitudes involved (income, volume of transaction, average cash holding) in monetary or in "real" terms (*e.g.*, in wheat, as Professor Pigou, following Marshall, does), because the denominator and numerator of the fraction would have to be deflated by the same index number, if we changed from one *numéraire* to another.

<sup>2</sup> If we adopt this definition in respect to individual hoarding, and if we agree that any hoarding by society as a whole must be allocated to certain individuals, we have implicitly answered the terminological questions raised above as to the relation between the "hoarding" and "velocity" concepts. Suppose there is no change in the habits of payment; if, then, demand shifts in such a way that the income of people who hold a small proportion of their income in the shape of money (whose  $k$  is relatively small) decreases, while the income of people who hold a large proportion of their income in money (whose  $k$  is great) increases, velocity of circulation decreases for society, whilst nobody



Finally, it should be observed that the total amount which an individual or a firm is able to hoard during a given period is by no means always limited by the income received during this period or by net new saving. It would perhaps be better to refrain from saying that a part of income or of saving is hoarded and, instead, to speak only of the hoarding of money. But whether this terminological rule is observed or not, it should be clear that an individual (firm) may hoard, besides money income, all the money received from regular sales. We then speak of the hoarding of amortisation quotas and of working capital. In addition an individual may sell any asset in his possession and hoard the proceeds. Or he may borrow (sell claims) and hoard the proceeds of the loan.<sup>1</sup>

We can pass now to Mr. KEYNES' theory of the rate of interest and investigate whether or not it is compatible with the traditional views.

Mr. KEYNES holds that the rate of interest, *The definition* contrary to the traditional view, according to which *of the rate of* it is "the reward of not spending" (on consumption), is "the reward of not hoarding",<sup>2</sup> "the reward for parting with liquidity for a specified period".<sup>3</sup> It "is a measure of the unwillingness of those who possess money to part with their liquid control over it. The rate of interest is not the 'price' which brings into equilibrium the demand for resources to invest with the readiness to abstain from present consumption. It is the 'price' which equilibrates the desire to hold wealth in the form of cash with the available quantity of cash."<sup>4</sup>

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need have hoarded, on our definition. This would, for example, be the case if demand for agricultural products increases (assuming that the farmer's  $k$  is greater than the industrialist's  $k$ ).

<sup>1</sup> Mr. Keynes is, of course, quite right in saying that "the decision to hoard is not taken absolutely" (*General Theory*, page 174). It may depend on the price obtainable for certain assets. Given a certain situation, we may conceive of a demand curve for idle balances plotted against the rate of interest.

<sup>2</sup> *General Theory*, page 174.

<sup>3</sup> *Ibid.*, page 167. Precisely the same definition has been given by Professor Albert Hahn in his *Volkswirtschaftliche Theorie des Bankkredits*, Tübingen, 1920.

<sup>4</sup> *Ibid.*, page 167.

However, as Professor ROBERTSON<sup>1</sup> and others have pointed out, one alternative would not seem to exclude the other : the rate of interest may well be regarded as a reward both for not-consuming *and* for not-hoarding. In order to earn interest, one must normally refrain not only from keeping money idle (from hoarding it), but also from spending it for consumption. But the first (Mr. KEYNES') condition is, perhaps, less essential than the second. As everybody knows, banks sometimes pay interest on demand deposits. If, then, hoarding takes the form of keeping idle deposits (rather than notes or coins), it does not preclude their earning interest on the amount hoarded, and the rate of interest cannot be said to be the reward for *not*-hoarding. It is true that the rate of interest on demand deposits is usually lower than the rate on time deposits or the bond rate. But this is not necessarily so; we can easily conceive of a situation where we have the same rate for all kinds of assets, and there have been instances when short-term rates of interest have been higher than long-term rates. Hence, the deposit rate (reward for hoarding) may be higher than, for instance, the bond rate (reward for parting with liquidity).

About the definition of the rate of interest, there is no real difference of opinion. Everybody means the same by "rate of interest" (at least, by the "explicit" rate of interest)—viz., "the price of debt"<sup>2</sup> or of a loan which is evidently the same as a debt.<sup>3</sup> Disagreement arises only when it comes to explaining the factors which determine the level of and fluctuations in the rate of interest.

<sup>1</sup> *Economic Journal*, 1937, page 431. "The fact that the rate of interest measures the marginal convenience of holding idle money need not prevent it from measuring *also* the marginal inconvenience of abstaining from consumption. Decumulation, as well as keeping-hoarded, is an alternative to keeping invested."

<sup>2</sup> Keynes : *General Theory*, page 173, bottom.

<sup>3</sup> Everybody means by "the rate of interest" the rate of interest on *money* loans—money loans of different duration, security, etc. By a money loan, we mean a loan which is expressed in terms of money. Interest and principal could be expressed in terms of other things than money. But even if they are expressed in money, the loan need not be paid out or repaid in money (cash). It may be given and repaid in kind and still be a money loan. Hence, what is needed is a *numéraire* and not actual money of exchange.

How does Mr. KEYNES' theory in this respect differ from the traditional views? According to *Liquidity preference demand for money*. Mr. KEYNES, the rate of interest is the resultant of two factors : liquidity preference and the quantity of money. "Quantity of money" we can translate by "supply of money". The money is taken as fixed by the monetary authorities, or the banking system, according to some principles of monetary policy. It may conceivably be a function of the rate of interest—that is, the banks may, for example, pursue the policy of expanding the supply when the rate of interest rises. But, usually, this is not the case. It should be noted that by "supply of money", Mr. KEYNES means the total supply for all purposes and not the supply of loanable funds alone. In this latter sense, the term "supply of money" is frequently used in the financial literature on the "money" market.

It is not so easy to interpret the term "liquidity preference".<sup>1</sup> "The subject is substantially the same as that which has been sometimes discussed under the heading 'Demand for Money'."<sup>2</sup> Hence we may formulate : the rate of interest is determined by demand for, and supply of, money rather than by demand for, and supply of, saving or credit (loans).

At first sight, this theory seems indeed revolutionary and to run counter to many well-established doctrines. This impression is strengthened by Mr. KEYNES' apparent denials that an increase in the rate of saving, *ceteris paribus*, tends to lower the rate of interest; that a rise in the marginal efficiency of capital (demand for loanable funds) resulting, say, from a new invention or from a turn of the general sentiment towards optimism tends, *ceteris paribus*, to raise the rate of interest.<sup>3</sup> He seems to imply, furthermore, that any increase in the quantity of money, *ceteris paribus*, tends to depress the interest rate (at least in the first instance, notwithstanding indirect and psychological repercussions).

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<sup>1</sup> On the various meanings with which it is used by Mr. Keynes in different places in his writings, compare, especially, Max Millikan : "Liquidity-Preference Theory of Interest", in *American Economic Review*, Vol. 28, June 1938, pages 247 *et seq.*

<sup>2</sup> *General Theory*, page 194.

<sup>3</sup> *Ibid.*, pages 140, 165, 184 and 185.

A more careful analysis of what is meant by "liquidity preference" or "demand of money" will show, however, that the real difference between Mr. KEYNES' theory and the theory which explains the rate of interest and its daily fluctuations by the interaction of demand for and supply of credit or loans (not saving) is not so great as may at first sight appear. A fundamental disagreement seems to arise, mainly because hidden assumptions are overlooked, especially those which are covered by the *ceteris-paribus* clause. The "other things" which are assumed to remain unchanged are not the same for all writers. Hence their disagreement is frequently due to their failure to realise the fact that they start from different assumptions, rather than to the fact that they arrive at different conclusions under the same set of assumptions.

Mr. KEYNES distinguishes three motives for holding money : (i) the transactions-motive, (ii) the precautionary-motive and (iii) the speculative-motive. The transactions-motive is defined as "the need of cash for the current transactions of personal and business exchanges"<sup>1</sup> and is split up

into the "income-motive and business-motive".<sup>2</sup> "One reason for holding money is to bridge the interval between the receipt of income and its disbursement . . . and, similarly, the interval between the time of incurring business costs and that of the receipt of sales proceeds."<sup>2</sup> In other words, a certain amount of money is required to "handle" a certain income and a certain volume of transactions. How much money is needed depends on the velocity of circulation of money and is determined by the habits of payment and other factors which have been touched upon in an earlier chapter, where references to the relevant literature are to be found.<sup>3</sup>

The precautionary-motive is described as the desire to hold cash "to provide for contingencies requiring sudden expenditures

<sup>1</sup> *General Theory*, page 170.

<sup>2</sup> *Ibid.*, page 195.

<sup>3</sup> Compare footnote 1 on page 59 (Chapter 3, § 6). The *locus classicus* of the discussion of these problems is Professor Marget's *Theory of Prices*, New York, 1938.

and for unforeseen opportunities of advantageous purchases".<sup>1</sup> Mr. KEYNES assumes that the amount of money needed for this purpose, as well as the amount needed for transaction purposes, depends on, and varies with, changes in the actual level of activity (more precisely, volume of transactions).

By the speculative-motive, Mr. KEYNES means the inducement to hold money for the purpose "of securing profit from knowing better than the market what the future will bring forth".<sup>2</sup> If, for instance, one expects the price of debt (e.g., of bonds) to go down—that is, the rate of interest to rise—one will try to change from debt to money, to sell bonds and hold money. Mr. KEYNES believes that "general experience indicates that the aggregate demand for money to satisfy the speculative-motive usually shows a continuous response to gradual changes in the rate of interest—i.e., there is a continuous curve relating to changes in the demand for money to satisfy the speculative-motive and changes in the rate of interest as given by changes in the price of bonds and debts of various maturities".<sup>3</sup>

Mr. KEYNES believes, furthermore, that it is *Hoarding and* roughly true that the total amount of money,  $M$ , *the rate of* can be divided into two parts,  $M_1$  and  $M_2$ , of which *interest.* the first part,  $M_1$ , is held to satisfy the transactions- and precautionary-motives and the second part,  $M_2$ , to satisfy the speculative-motive.<sup>4</sup>  $M_1$  may thus be called active or circulating money, whilst  $M_2$  is hoarded or idle or inactive money.  $M_1$  varies with the level of income or, rather, with the volume of transactions.  $M_2$  depends on the interest rate in such wise that it rises when the interest rate falls and falls when the interest rate rises.

This would seem to be the most important new relationship introduced by Mr. KEYNES; new, not in the sense that it has never

<sup>1</sup> *General Theory*, page 196.

<sup>2</sup> *Ibid.*, page 170

<sup>3</sup> *Ibid.*, page 197.

<sup>4</sup> *Ibid.*, page 199. Mr. Keynes realises that this is not quite correct, because "the amount of cash which an individual decides to hold to satisfy the transactions- . . . and precautionary-motive is not entirely independent of what he is holding to satisfy the speculative motive".

been suggested in the literature, but in the sense that it has never been carried through consistently. We may formulate this theorem also by saying that hoarding tends to be stimulated by a fall, and checked by a rise, in interest rates. Hoarding becomes cheaper when interest rates fall, and costly when they rise. In still other words, we may say that the velocity of circulation of money<sup>1</sup> is positively correlated to the rate of interest.<sup>2</sup>

It will be convenient in the following analysis to distinguish sharply between liquidity preference in the wider sense and in the narrower sense. By the former, we mean the demand for money for all purposes, inclusive of the transaction purpose ( $M_1 + M_2$ ); by the latter, demand for idle balances,  $M_2$ , alone. The narrower definition corresponds better to the everyday meaning of the term "liquidity preference". We shall therefore call it "liquidity preference proper". If somebody sells an asset against money and keeps the proceeds idle or if he refrains from spending all his money receipts as usual, we may describe that as an increase in his liquidity preference. Suppose, on the other hand, that wages rise but interest rates remain constant because the banks increase the money supply; then the average cash holdings of the working population will rise, and we have to describe that in Mr. KEYNES' terminology as a rise in liquidity preference in the wider sense: more money is held for transaction purposes.<sup>3</sup>

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<sup>1</sup> We think of the velocity of  $M$ , whilst Mr. Keynes (*General Theory*, page 201) speaks of the velocity of  $M_1$  alone. Mr. Keynes speaks furthermore of *income* velocity rather than of transactions velocity.

<sup>2</sup> A very instructive mathematical and diagrammatic exposition of these relationships and of Mr. Keynes' *General Theory*, *in toto*, has been given by Dr. Hicks: "Mr. Keynes and the Classics", *Econometrica*, April 1937, and by O. Lange: "The Rate of Interest and the Optimum Propensity to Consume", in *Economica*, February 1938, pages 12 *et seq.* Of the latter, Mr. Keynes says that it "follows very closely and accurately [his] line of thought". (*Economic Journal*, Vol. 48, June 1938, page 321.)

<sup>3</sup> Mr. Keynes himself states his theory sometimes in terms of liquidity preference in the wider sense and sometimes in terms of liquidity preference proper. An example of the latter will be found in *Economic Journal*, 1937, page 250. "If we mean by 'hoarding' the holding of idle balances, then my theory of the rate of interest might be expressed by saying that the rate of interest serves to equate the demand and supply of hoards".

This terminology does not appear to be in accord with everyday language.

Let us now consider how far Mr. KEYNES' liquidity-preference theory and the traditional demand-for-and-supply-of-loanable-funds theory of interest are really at variance.

Take, first, an increase of the demand for capital—*How a rise in that is*, in Mr. KEYNES' terminology, an upward *investment* shift of the schedule of the marginal efficiency of *demand* capital, which is characteristic of the prosperity *influences the* phase of the business cycle. Suppose an increase *interest rate*. in consumers' expenditure (however brought about) or improved expectations or inventions make entrepreneurs eager to invest. They demand investible funds, and, according to the traditional views, that will tend to drive up interest rates.

In spite of the impression to the contrary, this is not in contradiction with Mr. KEYNES' theory. We have only to translate what we have just said into his terminology. There are, in fact, two possibilities. First, if an entrepreneur borrows additional money from the market in anticipation of a future increase in his expenditure for investment purposes,<sup>1</sup> this represents an increase in his liquidity preference, for his demand for money has increased without either a fall in interest rate or, as yet, a rise in the volume of transactions. But, secondly, the entrepreneur may borrow additional funds no quicker than he spends additional funds on the increased investment. In this case, as indeed in the previous case also, there will be a rise in the volume of business transactions, and this will lead, sooner or later, to an increased demand for money to finance the larger turnover. This will involve a rise in interest rates, according to Mr. KEYNES, because less of the existing supply of money will remain available to satisfy the speculative motive for liquidity.

In either case, therefore, if the supply of money does not rise, the rate of interest must go up. This qualification about the supply of money cannot give rise to any disagreement, for it will

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<sup>1</sup> This case is an example of the demand for "finance" for planned investment, which is discussed below, page 212.

be accepted by the adherents of the traditional views. All agree that, in spite of an increase in demand for loanable funds, the interest rate will not go up if (a) the banks supply the necessary funds or (b) the public supplies them by dishoarding at unchanged interest rates.

Case (a) has been recently described by Mr. KEYNES, alternatively, as an increase of the willingness of the banking system to become illiquid, which cancels the rise in the liquidity preference of the public. "One could regard the rate of interest as being determined by the interplay of the terms on which the public desires to become more or less liquid and those on which the banking system is ready to become more or less illiquid."<sup>1</sup> Apart from terminological differences, therefore, this theory and the loanable-fund (in this case bank-fund) theory would seem to be almost identical.

In Mr. KEYNES' terminology, case (b) would have to be construed as a decrease in the liquidity preference of those who are "willing to release cash"<sup>2</sup> which cancels the increase in the liquidity preference of the entrepreneurs and thus leaves the interest rate constant.

When the entrepreneurs then spend the money on wages, etc., they become less liquid (their liquidity preference decreases), but the successive recipients of the money become more liquid (their liquidity preference increases). This can also be expressed by saying that income (or transactions), which is one source of the demand for money, goes up. More money is needed to satisfy the transactions-motive, and this drives up (or keeps up) the interest rate, unless less money is needed for satisfying the speculative-motive—in other words, unless somebody "releases cash" (that is, dishoards).

In a recent contribution, "The 'Ex-Ante' Planned investment and Theory of the Rate of Interest",<sup>3</sup> Mr. KEYNES has modified, and elucidated, his theory in a way which makes its similarity with the loanable fund theory still clearer. In his *General Theory*, he explained that the demand for money depended on the rate of interest

<sup>1</sup> *Economic Journal*, Vol. 47, 1937, page 666.

<sup>2</sup> *Ibid.*, page 667

<sup>3</sup> *Ibid.*, pages 663 *et seq.*



(determining the demand for idle balances) and on the actual level of activity (determining the demand for circulating balances). This, it is now admitted, was an incomplete statement. "The additional factor, previously overlooked, to which Professor OHLIN's emphasis on the *ex-ante* character of investment decisions has directed attention, is the following."<sup>1</sup> There is a third factor affecting the demand for money—viz., the necessity of providing what Mr. KEYNES proposes to call "finance" for planned investment. Before activity has actually gone up, funds for the intended outlay must be secured. "During the inter-regnum—and during that period only—between the date when the entrepreneur arranges his finance and the date when he actually makes his investment, there is an additional demand for liquidity without, as yet, any additional supply of it necessarily arising" (page 665). The adherents of the loanable-fund theory would merely substitute "credits" for the word "liquidity" in this sentence.

Mr. KEYNES rightly points out that this additional demand must meet with additional supply, if the rate of interest is not to rise. Somebody, the banks or the public, must "deplete their *existing* cash" (page 666), and he criticises Professor OHLIN for suggesting that *ex-ante* saving out of future income can satisfy the demand for finance. This is the same criticism as was made above when it was said that *ex-ante* saving in the sense of saving out of a future income cannot affect the bond market *now*. This criticism loses its validity, however, if *ex-ante* saving is interpreted, as was suggested above, in the Robertsonian sense, as saving out of a previously received income. The demand for finance can be satisfied by increased saving in this sense or by dishoarding. Both sources can be described (in Mr. KEYNES' words) as a depletion of existing cash—cash from idle balances or, in the case of additional savings, cash released from transactions balances by the reduced expenditure on consumption goods.

One point regarding Mr. KEYNES' theory of "finance" has given rise to an interesting discussion which throws much light

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<sup>1</sup> *Economic Journal*, *loc. cit.*, page 665.

on the whole issue.<sup>1</sup> It is Mr. KEYNES' insistence that "finance is essentially a revolving fund . . . . As soon as it is 'used' in the sense of being expended, the lack of liquidity is automatically made good and the readiness to become temporarily unliquid is available to be used over again."<sup>2</sup>

Professor ROBERTSON objected that finance funds which have been spent can be made available for new financing only if they are saved (in Professor ROBERTSON's sense) by one of the successive recipients. Mr. KEYNES' reply clearly indicated that there is no disagreement except a terminological one, due to the different definition of the concept of saving. Mr. KEYNES explains : "The demand for cash falls away unless the completed activity (associated with the expenditure of the finance funds) is being succeeded by a new activity."<sup>3</sup> It would appear that this condition might well be accepted by Professor ROBERTSON : for the primary activity will be succeeded by a new one, if the money is again spent on consumption; if it is saved, the "chain of activities" is interrupted, the demand for cash falls away unless the saving leads to a fall in interest rates which stimulates investment, or unless the marginal efficiency of capital rises—changes which are excluded by Mr. KEYNES' *ceteris-paribus* assumption.

On the question whether an increase in saving *The influence* (a fall in the propensity to consume) affects the rate of saving on of interest or not, Mr. KEYNES' views still seem to be *the rate of* very different from the traditional views. He *interest.* expresses the difference in principle between his and the traditional view as follows. Economists have "almost invariably . . . assumed . . . that, *ceteris paribus*, a decrease in spending will tend to lower the rate of interest and an increase in investment to raise it. But if what these two quantities determine is not the rate of interest, but the aggregate

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<sup>1</sup> Compare Professor Robertson's article, "Mr. Keynes on Finance", in *Economic Journal*, Vol. 48, June 1938, page 314 *et seq.*, and Mr. Keynes' reply, *ibid.*, page 318. See also E. S. Shaw, "False Issues in the Interest-Theory Controversy", in *Journal of Political Economy*, Vol. 46, December 1938, page 838.

<sup>2</sup> *Economic Journal*, Vol. 47, 1937, page 666.

<sup>3</sup> *Economic Journal*, Vol. 48, 1938, page 319.

volume of employment, then our outlook on the mechanism of the economic system will be profoundly changed. A decreased readiness to spend will be looked on in a quite different light if, instead of being regarded as a factor which will, *ceteris paribus*, increase investment, it is seen as a factor which will, *ceteris paribus*, diminish employment."<sup>1</sup>

Some misunderstanding seems to have arisen in this connection from different interpretations of the *ceteris-paribus* clause. The classical writers, when they are not dealing with money and the business cycles, are in the habit of taking total monetary outlay as constant; it is included in the *cetera* that remain the same. Then a decrease in one division (consumption spending) implies an increase in the other (investment). Assuming the marginal efficiency of capital to be constant, this implies a fall in the interest rate. Mr. KEYNES, on the other hand, includes liquidity preference among the other things that remain unchanged; then, since  $M$  has remained unchanged, the rate of interest cannot fall.<sup>2</sup>

Now the loanable-fund theorists would not deny that this might happen, but they would describe it differently: people may hoard the money which they fail to spend. In Mr. KEYNES' theory, this has to be described as a rise in liquidity preference proper;<sup>3</sup> demand for money for "speculative purposes",  $M_s$ , has risen. This implies a decrease in  $M_p$ , which is connected with the fall in activity. Thus total demand for money and the quantity of money remaining unchanged, the rate of interest remains unchanged too.

If, however, the producers of consumers' goods who experience a decrease in demand try to maintain activity by selling securities, the rate of interest will rise, and these sales will have to be construed as an increase in their liquidity preference.

There may be a difficulty in the timing of the processes; it is, however, clearly possible to conceive of a case where people spend

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<sup>1</sup> *General Theory*, page 185. This passage conveys the incorrect impression that, in Mr. Keynes' opinion, an increase in investment does not tend to raise the interest rate.

<sup>2</sup> This point was also made by T. W. Hutchinson: *The Significance and Basic Postulates of Economic Theory*, London, 1938, pages 44 and 45.

<sup>3</sup> Compare the definition of this concept given above on page 210.

less on consumption (save), but direct the money *simultaneously* to the purchase of new securities.

It would appear from the foregoing discussion that Mr. KEYNES' views on the question of how the rate of interest is influenced by changes in the propensity to consume (save)<sup>1</sup> are not so radically different from the views of other authors as may at first sight appear. In a very recent exposition of his theory, Mr. KEYNES has himself suggested this.<sup>2</sup> "The analysis which I gave in my *General Theory of Employment* is the same as the 'general theory' by Dr. LANGE on page 18 of his article."<sup>3</sup> On this page, Dr. LANGE states that "the traditional statement that the rate of interest . . . moves in the opposite direction to the propensity to save holds fully in our generalised theory".<sup>4</sup>

There remains one more case in respect of which *Changes in* the liquidity-preference theory seems to be at *M and the* variance with the traditional views—viz., the effect *rate of* of an increase in the quantity of money on the *interest.* rate of interest. It would seem that, according to Mr. KEYNES, such an increase must always lead to a fall in the rate of interest. This is, however, not Mr. KEYNES' view, because in many cases, such an increase will, automatically and *uno actu*, raise the liquidity-preference schedule. "Suppose that *M* consists of gold coins and that changes in *M* can only result from increased returns to the activities of gold-miners. . . . In this case, changes in *M* are, in the first instance, directly associated with changes in *Y*, since the new gold accrues as someone's

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<sup>1</sup> Since the propensity to save is equal to 1 minus the propensity to consume, any proposition regarding the propensity to save can be translated into a proposition regarding the propensity to consume and vice versa.

<sup>2</sup> See footnote 1, page 321, in *Economic Journal*, June 1938.

<sup>3</sup> *Economica*, February 1938.

<sup>4</sup> Hence we must conclude that Dr. Lange is not right when he attributes, rather unqualifiedly, to Mr. Keynes, not his *general* theory, but a *special* case of it—viz., that case where the "interest elasticity of the demand for liquidity is infinite" (page 19). It seems fair to say that Mr. Keynes holds that this situation obtains under special circumstances—viz., in deep depressions. It is "depression economics" (as Dr. Hicks, *loc. cit.*, says) and not the "general theory". For further discussion of this special case, see the text below, page 218.

income. Exactly the same conditions hold if changes in  $M$  are due to the Government printing money wherewith to meet its current expenditure;—in this case also, the new money accrues as someone's income."<sup>1</sup> The increased level of income represents increased demand for money; hence the increased  $M$  does not lead at once to a rise in the rate of interest.

"The new level of income, however [Mr. KEYNES elaborates], will not continue sufficiently high for the requirements of  $M_1$  to absorb the whole of the increase in  $M$ ; and some portion of the money will seek an outlet in buying securities or other assets until the rate of interest has fallen so as to bring about an increase in the magnitude of  $M_2$  and, at the same time, to stimulate a rise in  $Y$  to such an extent that the new money is absorbed either in  $M_2$  or in the  $M_1$  which corresponds to the rise in  $Y$  caused by the fall in the interest rate. Thus at one remove this case comes to the same thing as the alternative case where the new money can only be issued in the first instance by a relaxation of the conditions of credit by the banking system", and thus automatically entails a fall in the interest rate."<sup>2</sup>

This passage calls for some comments. The statement that "money will seek an outlet in buying securities" must surely imply that the recipients of the money whose incomes have risen save a part of it, in Professor ROBERTSON's sense? In this case, saving will reduce the rate of interest, although that entails part of the money going into hoards (increases the magnitude of  $M_2$ ). If people did not save, but spent all the new money on consumption,  $M_1$  would still absorb the whole increase in  $M$ .

The course of events might presumably differ from the one which Mr. KEYNES described: thus the increase in  $Y$  might stimulate investment, and this might more than compensate the tendency to a fall in the interest rate. Indeed, it is impossible to say what the outcome will be. But it is clear that Mr. KEYNES' theory does not imply that an increase in the quantity of money must in all circumstances entail a fall in the interest rate, and that

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<sup>1</sup> *General Theory*, page 200.

<sup>2</sup> *Ibid.*

its stimulating effect is conditioned by its having previously depressed the interest rate.<sup>1</sup>

Apart from terminological innovations, the real contribution brought by Mr. KEYNES' *General Theory of Interest* would seem to consist, as we have seen, of the proposition that hoarding is a function of the rate of interest. This does not of course mean that factors other than the rate of interest may not also exert an influence as strong as that of the interest rate on the amount of inactive balances. In other words, even in the short run, shifts of the liquidity-preference schedule may be at least as important as movements along the curve.<sup>2</sup>

Besides and in addition to the general empirical assumption about "demand for idle cash balances" (propensity to hoard), there is a more specific assumption about the shape of that demand curve (liquidity-preference schedule proper) which frequently plays an important rôle in Mr. KEYNES' theory. This more specific assumption constitutes Mr. KEYNES' "special theory", as Dr. HICKS has aptly called it.

This assumption is to the effect that, for low interest rates, "say 2%" (page 202), the demand for idle balances ("demand for liquidity") becomes more and more elastic and, at a rate well above zero, absolutely elastic—that is, insatiable. In technical parlance, the interest-elasticity of the demand for liquidity becomes

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<sup>1</sup> Some economists, however, have interpreted Mr. Keynes' theory to mean that an increase in the quantity of money could operate on the economic system only via the rate of interest. For example, Mrs. J. Robinson, in a review of Professor Bresciani-Turroni's *Economics of Inflation*, remarks: "The author assumes that an increase in the quantity of money was the root cause of the inflation [in Germany, in 1919-1923]. But this view it is impossible to accept. An increase in the quantity of money no doubt has a tendency to raise prices, *for it leads to* a reduction in the interest rate, which stimulates investment and discourages saving, and so leads to an increase in activity. But there is no evidence whatever that events in Germany followed this sequence" (italics not in the original). *Economic Journal*, Vol. 48, 1938, page 509.

<sup>2</sup> The same difficulties have to be faced by any two-dimensional analytical apparatus when applied to such a complex phenomenon as the demand for idle balances and the rate of interest. Compare on this point M. Millikan, *loc. cit.*, pages 254 *et seq.*

infinite :<sup>1</sup> the schedule of liquidity preference proper becomes horizontal. It is very important to realise that this is equivalent to saying that, when this critical level of interest rates has been reached, any amount of money which might be created by the banks will be hoarded, in addition to any amount which people save in excess of the current demand for investment purposes (in Mr. KEYNES' terminology, we should rather say : any amount of money which is released from balances held for business or income purposes). Suppose, for instance, that, at the depth of a depression, investment demand for loanable funds is at a low ebb, and that the rate of interest has reached that critical level of (say) 2%; suppose, moreover, that there is a reasonable degree of competition, so that wages and prices continue to fall so long as there is unemployment : then money is constantly released from the transaction sphere. But instead of being directed to the acquisition of assets, thus driving up their prices (which is equivalent to reducing the interest rate) and stimulating investment and employment, all this money is being hoarded. Hoards grow without limit in terms of money and, because of the fall in prices, still faster in real terms.

If such a situation exists,—*i.e.*, if the demand *A limit* for money-to-hoard (liquidity preference curve *to the fall in* proper) is perfectly elastic—"a rise in the schedule *interest rates.* of the marginal efficiency of capital only increases employment, and does not raise the interest rate at all".<sup>2</sup> Likewise, a rise in the rate of saving (propensity to consume) decreases employment without decreasing the rate of interest. The idea that such a situation might arise is original and is of considerable theoretical interest.

Let us ask how, according to Mr. KEYNES, such a situation could come about, and whether, according to him, it has ever arisen.

The reason for the existence of a minimum, below which the rate of interest cannot possibly fall, we may paraphrase in the words of Dr. HICKS : "If the costs of holding money can be

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<sup>1</sup> Lange, *op. cit.*, pages 18 and 19.

<sup>2</sup> Hicks, *op. cit.*, page 154.

neglected, it will always be profitable to hold money rather than lend it out, if the rate of interest is not greater than zero. Consequently, the rate of interest must always be positive. In an extreme case, the shortest short-term rate may perhaps be nearly zero. But if so, the long-term rate must lie above it, for the long rate has to allow for the risk that the short rate may rise during the currency of the loan, and it should be observed that the short rate can only rise, it cannot fall. This does not only mean that the long rate must be a sort of average of the probable short rates over its duration, and that this average must lie above the current short rate. There is also the more important risk to be considered—that the lender on long term [*e.g.*, bondholder] may desire to have cash before the agreed date of repayment, and then, if the short rate has risen meanwhile, he may be involved in a substantial capital loss.”<sup>1</sup> Thus, in the words of Mr. KEYNES, “the rate of interest is a highly conventional phenomenon. For its actual value is largely governed by the prevailing view as to what its value is expected to be.”<sup>2</sup> The argument is perhaps more intelligible when put in terms of asset prices (*e.g.*, bond prices) instead of interest rates. If asset prices are expected to fall (long-term rates to rise), asset prices cannot remain at a level much higher than the expected price, because people would prefer to keep their resources in cash, in spite of very low short rates.<sup>3</sup>

Weighty arguments against the assumption that the expected rate of long-term interest (asset prices) is likely to persist unchanged for any length of time, in spite of a fall in the current short-term rate, have been brought forward by Mr. HAWTREY.<sup>4</sup> We need

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<sup>1</sup> *Loc. cit.*, pages 154 and 155. Compare also Professor Hicks' book, *Value and Capital*, Oxford, 1939, especially Chapter XI.

<sup>2</sup> *General Theory*, page 203.

<sup>3</sup> When put in terms of asset prices, it becomes clear that it is an optical illusion to say that the rate of interest cannot fall farther because it is “so near to zero”. Between, say, one *per cent* and zero *per cent*, there are still as many intermediate positions as there are between the price at \$400 of a \$100 4% bond (corresponding to a capitalisation at an interest rate of 1%) and the infinitely high price of the same bond corresponding to a capitalisation at a rate of zero *per cent*.

<sup>4</sup> *Capital and Employment*, 1937, Chapter VII. See also Mr. Kaldor's reply to Mr. Hawtrey's criticism of Mr. Keynes, “Mr. Hawtrey on Short and Long Term Investment”, in *Economica*, November 1938, pages 464 and 465.



however, not go into this matter more thoroughly, because Mr. KEYNES himself (quite rightly, it would seem) believes that this contingency of an "absolute liquidity-preference" is a theoretical possibility which has actually not yet arisen. "But whilst this limiting case", in which "the monetary authority would have lost effective control over the rate of interest" (and in which, we may add, no fall in wages and prices could depress the rate of interest by releasing money from the transaction sphere), "might become practically important in future, I know of no example of it hitherto. Indeed, owing to the unwillingness of most monetary authorities to deal boldly in debts of long term, there has not been much opportunity for a test."<sup>1</sup> Nor, we may add, has the alternative to a policy of increasing the quantity of money—viz., a sustained fall of *all* prices and wages—been put to a real test.<sup>2</sup>

An almost perfectly elastic demand for idle *Summary.* balances up to a very considerable amount may occasionally occur, and has occurred temporarily (Mr. HAWTREY's temporary credit deadlock), but the hypothesis that it may exist indefinitely has not yet been put to the test of fact.<sup>3</sup>

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<sup>1</sup> *General Theory*, page 207. It must, however, be admitted that there are many passages in Mr. Keynes' writings which are difficult to reconcile with this pronouncement and seem to assume the actual existence of cases of an insatiable desire for liquidity.

<sup>2</sup> It should be understood that, according to Mr. Keynes' theory, the two policies are alternative means only in one respect, which is, however (in the present context), the important one. Both policies serve to increase the quantity of money in terms of real purchasing power, "in terms of wage units", as Mr. Keynes says. On page 234 of his *General Theory*, Mr. Keynes says, for example: "The only relief [for an excessive liquidity preference—that is, for an extreme desire to hoard]—apart from changes in the marginal efficiency of capital—can come . . . from an increase in the quantity of money, or—which is formally the same thing—a rise in the value of money." (Note that this passage contains an explicit statement to the effect that a fall in wages and prices will eventually bring relief. We wish, however, by no means to deny, nor does Mr. Keynes, that in many other respects the two policies are very different and cannot be regarded, from a practical point of view, as good substitutes. Cf. § 5 of this chapter below.)

<sup>3</sup> Chronic unemployment with stable money wages is no proof of an absolute liquidity preference.

§ 4. THE "MULTIPLIER" AND THE "MARGINAL PROPENSITY TO CONSUME"

"Three fundamental psychological factors—*The "psycho-logical"* namely, the psychological propensity to consume, the psychological attitude to liquidity and the *determinants of* psychological expectation of future yield from *Mr. Keynes' capital assets*" (which govern, together with "the *system.* given factors", capital equipment, etc., the marginal efficiency of capital or demand for capital)<sup>1</sup>—constitute the skeleton of Mr. KEYNES' theoretical system which "determines the national income and the quantity of employment". Mr. KEYNES is careful to explain that these psychological propensities (together with some non-psychological factors such as the wage unit and the quantity of money) can only "sometimes" be regarded as the "ultimate independent variables" (page 246). He recognises that they are "themselves complex and that each is capable of being affected by prospective changes in the others"<sup>2</sup> and, presumably, *a fortiori*, by *actual* changes in the others. (Thus we have seen that the liquidity preference is influenced by actual and prospective changes in the marginal efficiency of capital.)

As will be illustrated by various examples in the following pages, we have here a source of frequent misunderstandings. Those who have become accustomed to think in terms of

<sup>1</sup> *General Theory*, pages 246 and 247.

<sup>2</sup> *Ibid.*, page 184. In the course of the discussion, Mr. Keynes is sometimes inclined to forget these limitations of his theory. This has misled some economists to overlook them altogether. The usefulness of the system clearly depends on the degree of independence of these variables. If they were highly interdependent, they could not be regarded as "ultimate independent variables". This, is, of course, a difficulty which any interdependence theory, especially one in macro-economic terms, has to face. It is impossible to build up a theory which explains national income and employment in terms of a few complex, strictly independent factors without having regard to their internal structure. Such a procedure can yield only rough approximations. Mr. Keynes is well aware of these difficulties. See, for example, his remarks, *General Theory*, page 297.

Mr. KEYNES' system take the determinant propensities, the wage unit,<sup>1</sup> etc., as given, and regard them as independent from one another, whilst other writers, brought up in traditional modes of thought, frequently make assumptions which imply a mutual influencing of Mr. KEYNES' determinants, or treat some of them as variables. These differences in the starting-point are concealed by differences in terminology.

Marginal efficiency of capital (demand for capital) and liquidity-preference having been discussed, we now turn to an examination of the concept "marginal propensity to consume" and the closely related "multiplier".

Mr. KEYNES considers the theory of the so-called *The problem of the multiplier* "an integral part of his theory of employment" (page 113). The multiplier—*k*—"multiplier". "establishes a precise relationship, given the propensity to consume, between aggregate employment and income and the rate of investment" (page 113). "It tells us that, when there is an increment of aggregate investment, income will increase by an amount which is *k* times the increment of investment" (page 115):  $\Delta Y = k \Delta I$ , and  $\Delta Y = \Delta C + \Delta I$ , if by  $\Delta Y$ ,  $\Delta I$  and  $\Delta C$  we denote small increments of income, investment and consumption respectively. (We need not go into the question of the unit in which these magnitudes are expressed. Mr. KEYNES discusses this question carefully and elects to express all these magnitudes in "wage units". We may, however, think of them just as well in "real" terms or in terms of money.) "The fundamental notion" underlying the theory is that, if "we conceive the monetary or other public authority to take steps to stimulate or to retard investment, the change in the amount of employment" will not be confined to the investment industries, but will extend to the consumption industries and "will be a function of the net change in the amount of investment"; and the theory aims "at laying down general principles by which to estimate the actual quantitative relationship between an increment

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<sup>1</sup> In particular, the assumption regarding the stability of the wage unit, with its implication of rigid money wages, is apt to be lost sight of, but should be well kept in mind. (This will be discussed at greater length below, § 5 of this chapter.)

of net investment and the increment of aggregate employment which will be associated with it " (pages 113 and 114).

The pure theory of the multiplier consists of the establishment of a precise relationship between the multiplier and the marginal propensity to consume. *The pure theory of the multiplier*. The propensity to consume is defined as the functional relationship between "a given level of income" and "the expenditure on consumption out of that level of income" (page 90). The *marginal* propensity to consume is then the relationship between an increment of income and the expenditure on consumption out of this increment. It is measured by  $\frac{\Delta C}{\Delta Y}$ , which is always smaller than unity, because "the normal psychological law" holds that, "when the real income of the community increases or decreases, its consumption will increase or decrease, but not so fast" (page 114).<sup>1</sup> The marginal propensity to consume "tells us how the next increment of output will have to be divided between consumption and investment" (page 115). A marginal propensity to consume of, for example,  $\frac{9}{10}$  means that  $\frac{9}{10}$  of the next increment of income will be consumed. If the marginal propensity to consume is 1, the whole increment will be consumed; if it is zero, the whole will be saved. It follows that the (marginal) propensity to save has to be defined as 1 minus the (marginal) propensity to consume. If the latter is  $\frac{9}{10}$ , the former is  $\frac{1}{10}$ , this being the proportion (of the next increment) of income saved. If the marginal propensity to consume is 1, the

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<sup>1</sup> It may be observed, *en passant*, that the marginal propensity to consume of an individual may conceivably be greater than unity: that is to say, an individual may be induced by an increase in his income to spend more than that increment on consumption. This need not, however, make his *average* propensity to consume greater than unity—in other words, it need not mean dissaving. (An average propensity to consume greater than unity means that  $C > Y$ —i.e., that the individual dissaves, "lives on his capital".) Mr. Keynes does not consider this case. (Compare, however, Mr. G. R. Holden's paper "Mr. Keynes' Consumption Function, A Rejoinder", *Quarterly Journal of Economics*, August 1938, and Mr. Keynes' reply *Ibid.*, November 1938.)

marginal propensity to save is zero; if the former is zero, the latter is 1.

It should be kept in mind that the terms "propensity to consume (save)" and "marginal propensity to consume (save)" are usually used in the schedule sense—that is to say, they usually denote the whole schedule, showing what proportion of different hypothetical incomes or increments to income an individual or society as a whole would consume (save). Sometimes, however, when speaking of the propensity to consume, reference is made to a particular point (mainly the point actually realised) on the schedule of alternatives. Although it will usually be clear from the context in what sense the word is used, it would be better to speak, when not referring to the schedule as a whole, of "the rate of consumption (saving)"<sup>1</sup> or, better still, of "the proportion of income consumed (saved)".

What is the relation between the marginal propensity to consume and the multiplier? The relationship is quite simple :

$$\Delta Y = k\Delta I$$

$$k = \frac{\Delta Y}{\Delta I}.$$

$$\text{Since } \Delta Y = \Delta C + \Delta I,$$

$$k = \frac{\Delta Y}{\Delta Y - \Delta C} = \frac{1}{1 - \frac{\Delta C}{\Delta Y}}$$

Thus, the multiplier  $k$  is, by definition, equal to 1 divided by 1 minus the marginal propensity to consume; and the marginal propensity to consume,  $\frac{\Delta C}{\Delta Y}$ , is equal to  $1 - \frac{1}{k}$ . Since  $1 - \frac{\Delta C}{\Delta Y}$  is the marginal propensity to save, we can also say that the multiplier is the reciprocal of the marginal propensity to save, and vice versa. We

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<sup>1</sup> It will be observed that what is meant is not the *time* rate of consumption (saving), the amount consumed (saved) per unit of time, but the *income* rate, amount consumed (saved) per unit of income. This rate of consumption is measured by  $\frac{C}{Y}$ ; the rate of saving by  $\frac{S}{Y}$ . Since  $S = Y - C$ , the rate of saving is 1 minus the rate of consumption:  $\frac{S}{Y} = 1 - \frac{C}{Y}$ .

have thus three interchangeable expressions for the same thing. The expression "marginal propensity to consume" can always be replaced, without a change in meaning, by the expression "1 minus the marginal propensity to save" or by "1 minus the reciprocal of the multiplier".

It follows that if, for instance, the marginal propensity to consume is  $\frac{9}{10}$  (the marginal propensity to save being  $\frac{1}{10}$ ), the multiplier is 10; "the total employment caused (for example) by public works will be ten times the primary employment provided by the public works themselves, assuming no reduction of investment in other directions" (pages 116 and 117). This result is clearly implied by the assumption made. If we assume that an increment in  $Y$  is divided in the proportion of 1 : 9 between  $I$  and  $C$ , then we assume that an increase in  $I$  by  $x$  units will mean an increase of  $9x$  in  $C$  and an increase of  $10x$  in  $Y$ . If we assume the marginal propensity to consume to be zero—in other words, that an increment in  $Y$  is wholly confined to  $I$ —then we assume that an increment in  $I$  increases  $Y$  by no more than its own amount. If the marginal propensity to consume is assumed to be 1—that is, if we assume that "the next increment of output will have to be divided between consumption and investment" in the proportion of 1 to 0—then, in order not to contradict that assumption, we must assume that any increase in  $I$  is accompanied by an infinite increase in  $C$  and  $Y$ : the multiplier is infinitely high. In plain English, there can be no increase in  $I$ .

It will be well to keep in mind the logical nature of the "pure theory of the multiplier"<sup>1</sup> which is clearly revealed by the foregoing discussion. The theory is not intended by Mr. KEYNES as a statement about a relationship in the real world between two distinguishable phenomena; there are not two facts, the marginal propensity to consume on the one hand, and the multiplier on the other, of which the former influences and governs the latter. The logical theory of the multiplier establishes a terminological rule

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<sup>1</sup> Mr. Keynes calls it the "logical theory of the multiplier" (*General Theory*, page 122).

for the use of the two terms "marginal propensity to consume" and "multiplier" and nothing more.

The practical problem to the solution of which *The practical problems behind the multiplier.* the theory of the multiplier and the attempts at a statistical measurement of its magnitude are directed is the determination, if possible in advance, of the indirect effects of Government expenditure on public works and the like. The underlying idea is that, if the Government spends several hundred million dollars on public investment and thereby creates additional employment, the first recipients of the money will spend at least a part of their income on consumption; the consumption industries will be stimulated; the money will be spent again and again; and a whole series of successive income- and employment-creating expenditure will emanate from the first investment. The question is, how big will be the secondary, tertiary, etc., effects flowing from the primary investment of a given magnitude?<sup>1</sup> For the reasons given below, the pure theory of the multiplier cannot provide a final answer to that question.

(1) The multiplier refers to the effect of an *The problem of determining* increment of *net* investment. Hence, as Mr. KEYNES states, "if we wish to apply [the theory of the "net investment multiplier] without qualification to the effect of *ment*". (for example) increased public works, we have to assume that there is no off-set through decreased investment in other directions" (page 119). In other words, a concrete amount of public works cannot, without examination, be accepted as *net* new investment; the public works policy may have unfavourable repercussions on private investment (*a*) by raising prices of material and labour; (*b*) by raising the interest rate, because of the method of financing employed; (*c*) owing to repercussions "through psychology", if a Government deficit

<sup>1</sup> The idea that investment stimulates consumption is almost as old as business-cycle theory. That it is inherent in the Wicksellian theory of the cumulative process of expansion has already been said (see Chapter 3, pages 33 *et seq.*, above). Mr. Kahn, among others, has analysed the problem in his article "The Relation of Home Investment to Unemployment" (*Economic Journal*, June 1931), and has contributed the word "multiplier".

shakes confidence; (d) through unfavourable influences on the international balance of trade and payments.

Some of these factors have been discussed by Mr. KEYNES (*General Theory*, pages 119 to 121), Mr. KAHN (*loc. cit.*), and by other writers in the considerable recent literature on expansionist policies in general and public works in particular.<sup>1</sup>

(2) Mr. KEYNES speaks only of “adverse reactions on investment” of a public works policy, but it may have favourable reactions too. Indeed, it is generally considered as a condition of success of a “pump priming policy” that it should stimulate private investment. Public investment may stimulate private investment either directly or by first stimulating consumption.<sup>2</sup> All this is now well known and has been thoroughly discussed, but it all lies outside the pure theory of the multiplier.

(3) But the theory of the multiplier needs to be expanded and qualified in other ways. By expressing the multiplier in terms of the marginal propensity to consume, the impression is conveyed that it is possible to base the analysis on a fairly stable psychological magnitude. People’s habits as to saving and spending are regarded as fairly constant, and this constancy and stability is transmitted by definition to the multiplier. A closer examination reveals, however, that this stability may be exaggerated. Mr. KEYNES speaks frequently of “the fundamental psychological law, upon which we are entitled to depend with great confidence both *a priori* from our knowledge of human nature and from the detailed facts of experience”;<sup>3</sup> this law is to the effect that “men are disposed . . . to increase their consumption as their income increases, but not by as much as the increase in their income”. He refers to the consumer, and sometimes to society as a whole. But the marginal propensity to consume of society as a whole (which corresponds to the multiplier)

<sup>1</sup> See, for example, A. D. Gayer, *Public Works in Prosperity and Depression* (New York, 1929), and J. M. Clark, *Economics of Planning Public Works* (Washington, 1935).

<sup>2</sup> This latter relationship is described by the acceleration principle.

<sup>3</sup> *General Theory*, pages 96 and 114.



cannot be identified with a psychological law about the behaviour of the individual consumer, for many other factors besides the consumers' behaviour determine the marginal propensity to consume of the society.

For a number of reasons, the stability of the multiplier must not be over-emphasised.

(a) As has been pointed out above (page 198), in the short run, the psychological traits of the individual in respect to saving and spending cannot safely be regarded as constant.<sup>1</sup>

(b) As Dr. STAEBLE<sup>2</sup> has shown, changes in the *Changes in income distribution* of income are very important for the propensity to consume of society as a whole, even from the short-run point of view. Since the propensities for different people or groups of people are different, a change in the distribution may give an unexpected turn to the marginal propensity to consume of society as a whole (contrary to the fundamental psychological law), even if the propensity of each individual is constant and conforms to "the fundamental psychological law", to which Mr. KEYNES appeals. For this reason, in using the concept of the multiplier, allowance must be made for the changes in the distribution of income which are likely to be associated with a change in the level of incomes.

(c) Laws relating to consumers' behaviour cannot be directly applied to collective magnitudes, because what society as a whole invests and consumes is determined also by decisions of big corporations and of public bodies which cannot be so confidently assumed to be subject to the "fundamental psychological law" on which Mr. KEYNES depends for his empirical generalisations. In making use of the multiplier, allowance must be made for the proportion of any additional profit which companies are likely to save by adding to their reserves.

<sup>1</sup> Cf. Elizabeth W. Gilboy, "The Propensity to Consume" in *Quarterly Journal of Economics*, Vol. 53, November 1938, and Mr. Keynes' reply, *ibid.*, May 1939.

<sup>2</sup> "Short Period Variations in the Distribution of Incomes", *Review of Economic Statistics*, Vol. 19, 1937 (pages 133 to 143) and the comments by F. C. Dirks, *Review of Economic Statistics*, Vol. 20, and rejoinder by Dr. Staehle, *ibid.*

Moreover, with respect to public expenditure, the distinction between consumption and investment is in many cases very arbitrary. Expenditure connected with the construction of battleships, river-dams and the like will be classified as investment. Dole payments to unemployed and expenditure for war veterans' bonus will be counted as consumption expenditure and, if the Government borrows to meet this expenditure, as dissaving. But how are we to classify money paid to unemployed workers to perform "public works" of very doubtful value? Suppose these works consist of digging holes in the ground and filling them up again. Or suppose a road is built at a cost which far exceeds its value to the community.<sup>1</sup> Evidently, the classification, and still more the estimate of the value of investment involved in such cases, is highly arbitrary and conventional.<sup>2</sup> But the magnitude of the multiplier will be influenced by such arbitrary decisions. The fewer are the doubtful cases regarded as investment and the lower is the investment value assumed in each case, the greater will be the multiplier—that is, the marginal propensity to consume of society as a whole. Hence the value of the latter will *pro tanto* depend upon these arbitrary classifications and not on the psychological propensities of the consumer.

Fortunately, in order to form an opinion on the probable secondary effects of public expenditure, classification as consumption or investment is generally of minor importance. What matters are the factors stressed by traditional theory: the methods used by the Government in raising the money, the rapidity with which the successive recipients spend it, the manner of spending, etc. In this latter respect, *individual* propensities with regard to saving and consumption come into the picture, but

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<sup>1</sup> Compare, for instance, this case with another one where the same road is built with less labour and at a much lower cost, and the superfluous workers receive a dole. Part of the total money spent is investment and the other part consumption, whilst, in the case mentioned in the text, all is counted as investment.

<sup>2</sup> These problems are discussed at great length in various contributions to *Studies in Income and Wealth*, Vol. I and II (ed. by National Bureau of Economic Research, New York, 1937 and 1938).

together with many other determining factors, so that no simple and unique relationship between them and the multiplier (marginal propensity to consume of *society as a whole*) can be expected.

(d) Mr. KEYNES expresses the view that, in the short run, the marginal propensity to consume (multiplier) may deviate from its "normal" value, but he assumes that it will gradually return to it.<sup>1</sup> Such a deviation will occur if producers of consumers' goods do not foresee the increase in demand resulting from an expansion in the capital-goods industries. Then, momentarily, prices of consumers' goods will rise or stocks be depleted. The same is true when full employment is reached or bottle-necks prevent consumers' goods industries from expanding. All these factors, which cannot be said to be governed by a psychological law, must be taken into account in order to determine the marginal propensity to consume of the community (multiplier).

(e) Certain difficulties arise when we consider *The multiplier and income velocity of circulation of money*. Suppose the psychological marginal propensity to consume of those who receive money from the Government through public works is unity; that is, they save nothing, but spend the whole amount they receive on consumption. This is a conceivable situation, even if it is deemed unlikely. For reasons which will be discussed at some length in the second part of this book (Chapter 10, § 6), we should normally expect the secondary effects of a public works policy to be greater in that case than if the marginal propensity to consume was smaller than 1. But we should not expect to find an infinite rise in demand for consumption goods. This is, however, what follows from the assumption that Mr. KEYNES' marginal propensity to consume for society as a whole is unity; for this latter implies, as we have seen, that the multiplier is infinite. As Mr. KEYNES says, "the logical theory of the multiplier . . . holds good continuously, without time-lag, at all moments of time".<sup>2</sup> Hence, as there will,

<sup>1</sup> *General Theory*, page 123.

<sup>2</sup> *Ibid.*, page 122.

in fact, be some time-lag between the receipt of money and its expenditure, and since this time-lag will prevent an increase in investment from causing an immediate rise in consumption to infinity, we must say, in Mr. KEYNES' language, that there is a temporary distortion of the propensity to consume, and that consumption will only gradually tend to increase to infinity if the net increase in investment expenditure is permanently maintained. Hence, to determine the secondary effects, in time, of new public expenditure, we need, in addition to the information about the marginal propensity to consume of the various individuals, also information about the income velocity of money. This point has been well discussed by Professor J. M. CLARK (*op. cit.*).

We are now in a position to sum up the conclusions of our discussion. The pure theory of the multiplier shows the definitional relation between the "propensity to consume" and the multiplier. Many problems which are frequently discussed under the heading "multiplier" lie outside the pure theory of the multiplier. They can be divided into two groups, those relating to (a) the determination of the amount of *net* investment associated with a given amount of spending under varying circumstances and (b) the determination of the numerical value of the multiplier. The marginal propensity to consume of the individual to which Mr. KEYNES' fundamental psychological law refers, is only one of many factors which are causally important for the determination of the marginal propensity to consume (multiplier) of society as a whole. For this reason, care must be taken not to exaggerate the stability of the multiplier, which cannot be treated as a datum, but must be included among the variables (*quaesita*) of the theoretical system.<sup>1</sup>

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<sup>1</sup> This is also the opinion of Mr. E. Lundberg (*cf. Studies in the Theory of Economic Expansion*, London, 1937, page 36), who believes that the multiplier will exhibit a cyclical movement over time.